

ANNALS OF OTOLOGY, RHINOLOGY AND LARYNGOLOGY.

VOL. VI.

NOVEMBER, 1897.

No. 4.

TWO CASES OF OPENING OF THE LATERAL SINUS FOR INFECTIVE THROMBOSIS, WITH A TABLE OF OPERATIONS PERFORMED PREVIOUS TO 1897.

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The operative treatment of infective thrombosis of the cranial sinuses in consequence of suppurative diseases of the middle ear, is one of the latest achievements of otology and surgery. We owe the first conception of the idea to Zaufal, of Prague, who recommended it in 1880, and who in 1884 carried it out in one case, although with fatal termination. Independently, and without knowing of Zaufal's priority, Horsley, of London, in 1888, advocated the ligation of the jugular vein in order to prevent the infection of the system, and performed it in one instance; he also failed to save his patient. The next two operations, one by Lane, of England, the other by Hoffman, of Germany, in 1888, were crowned with success, and, as soon afterward ('89-90) Ballance, of London, reported four cases with two recoveries, the operation which was received with enthusiasm by the profession and performed frequently in different countries, is now considered the legitimate procedure.

A further step in advance was made by the appearance of the master work of Macewen "Pyogenic infective diseases of the brain and spinal cord," in 1893. On the continent the general acceptance of the operation was mainly due to the efforts of Bergmann and Koerner.

I will first report my two cases, and add a short synopsis of the cases reported up to the current year.

CASE I.—CHRONIC OTITIS MEDIA, MASTOID ABSCESS AND SIGMOID SINUS THROMBOSIS. EVACUATION OF SINUS AND LIGATION OF JUGULAR VEIN. DEATH FROM PYEMIA DUE TO A DEEP-SEATED ABSCESS IN CERVICAL REGION. DURATION ONE MONTH.

History:—John K., Hungarian by birth, 26 years old. Patient had since childhood left-sided otorrhea, the cause of which was unknown to him. No treatment had been prescribed, as he experienced no pain. Three years ago he was seized with a very violent pain in the ear, for which he was treated by a specialist for about four weeks. Since then, a somewhat fetid discharge has persisted, but no pain until recently.

Patient first consulted me on January 15, 1894, because of pain in the ear for three or four days preceding. He is of medium size and fairly well nourished. Right ear normal, hearing 1.0. Left ear, foul smelling discharge in moderate quantity. After cleansing, the walls of the external canal were found to be somewhat swollen, the tympanic membrane gone, and the middle ear completely filled with small polypi and granulation tissue. The region over the mastoid showed no swelling, but was somewhat tender on pressure. Temperature 100° F.

In consequence of careful cleansing with antiseptics for about a week the pain subsided, and the temperature fell to normal.

I then removed two of the largest polypi with the snare; but finding the entire middle ear filled with granulations, proposed an evacuation of the cavities by an operation through the mastoid. As the patient felt very well at the time, he declined, and I saw him only once or twice within the next two weeks. On February 17, I was called to see him at his residence. He was confined to bed, complaining of severe pain in the entire left side of the head. He had had chills and rigors for two days, and had vomited two or three times. Temperature 100, pulse 100. The region over the mastoid was somewhat swollen, and the tenderness on pressure was more pronounced. I informed him that an operation was urgent, and sent him to the hospital the same afternoon.

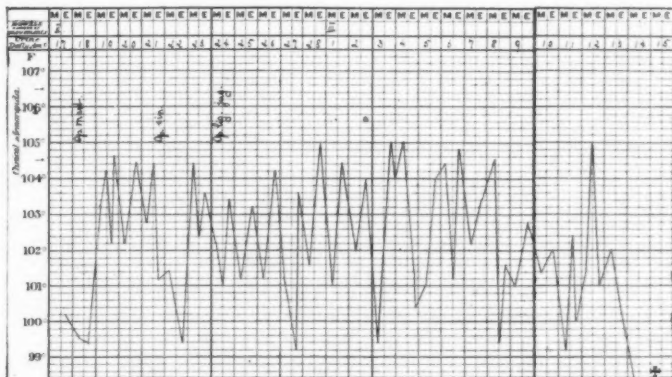
Operation, (Stacke's), February 18th.—Immediately after the removal of the external table, fetid pus was found. The antrum was exposed, and found filled with granulation tissue and pus. A portion of the posterior wall of the external canal was then removed, so that the canal, antrum and tympanum formed one large cavity, from which the foul smelling pus and abundant granulation tissue were carefully removed. Only small portions of the ossicles remained. The tegmen tympani and antri were found healthy, but the bone in the region of the lateral sinus seemed somewhat discolored, so that I stated at the close of the operation that, if the symptoms did not subside rapidly, opening of the sinus would be indicated.

After the operation the patient felt relatively well and the temperature did not reach 100°. However, during the next two days it rose to between 103 and 105, the pulse varying between 80 and 112. [See temperature chart.]

He complained of headache and had chills. There was no paresis nor any material change in the fundus of the eyes. The general

condition and curve of temperature were typical for systemic pyemic infection. Therefore,

Opening of the lateral sinus, February 21, in its sigmoid portion from the cavity in the mastoid. An oblong piece of bone, (discolored as before described) nearly one inch long and one-third of an inch wide was removed by careful chiselling and forceps. Some pus and granulations were found between it and the exposed wall of the sinus, which was also discolored. The sinus was then punctured with an exploring needle and found thrombosed. An incision in its wall, as long as the opening in the bone was then made, and a large softened purulent thrombus removed. The cavity was then gently cleansed with a blunt spoon as far as practicable, first downward, then upward. There was no hemorrhage from the lower, and only



a moderate one from the upper end. As soon as this appeared the sinus was closed by compressing its walls with antiseptic gauze and the hemorrhage easily checked.

Subsequent Course—The expectation of checking the further infection of the system was not realized. While on the next day he had no chills, (temperature below 100) and felt some better, on the following day he became worse, the symptoms beginning with a chill. The temperature again rose to $104\frac{2}{5}$, pulse became frequent, pain appeared in different joints, and, in short, he presented for the next two days the typical picture of an even more serious pyemic infection.

The area over the jugular vein on the neck had been regularly examined since his entrance into the hospital, but it was never painful, and no thickening nor stringiness indicating thrombosis of the jugular vein could ever be detected. For the continuance of the septic state there seemed to be but one explanation, viz., that the septic thrombus had already reached the bulb of the jugular, and had not been entirely removed. It was accordingly decided to ligate the jugular vein, an operation which was done by Dr. A. C. Bernays, on the 24th. The vein was filled with normal blood; no sign of thrombosis. It was ligated in two places and cut between the ligatures.

The ligation did not have the desired effect, as the pyemic state continued. Frequent and profuse perspirations, pain in the joints and high temperature weakened the patient more and more. He became delirious, then somnolent, and finally fell into deep coma, and exitus lethalis ensued on the 15th of March. The temperature during the last two weeks ranged between 101 and 105, pulse between 110 and 130.

The wound in the mastoid and sinus was throughout in the normal condition of an undisturbed healing process.

Post Mortem—The skull was opened in the usual way. The contents did not present any pathological appearance, and the brain was intact. There was no lepto-meningitis, nor any trace of pachymeningitis. The dura mater covering the temporal bone was perfectly normal throughout. The inner wall of the lateral sinus in its sigmoid portion was of normal appearance, half transparent, so that

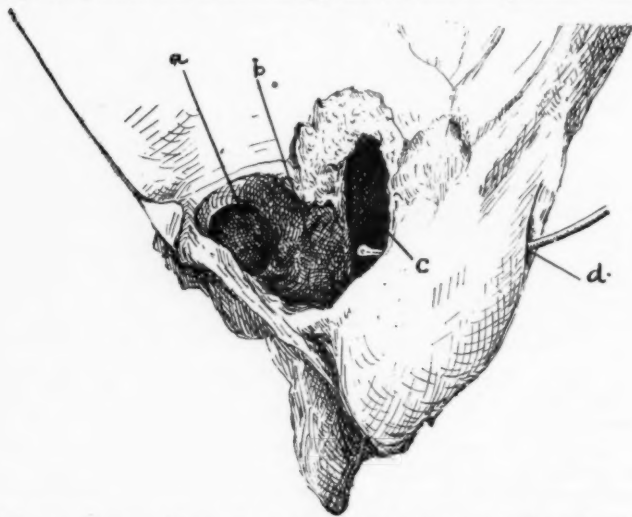


Fig. 1.—Temporal bone from the outside. (a) external canal; (b) opened mastoid cavities; (c) sinus laid open; (d) mastoid foramen.

the defect in the bone due to the operation could be plainly seen through it. Upward, in its horizontal portion, the sinus was closed for about one inch, its walls being *soldered*, as it were. Downward, in the end of the sigmoid portion, it was patent for about half an inch, but further down it was firmly soldered. The jugular vein between the bulbus and the ligature was filled with a healthy thrombus which showed no disintegration, and which was without doubt the consequence of the ligature. No thrombus was present in any other of the dural sinuses. Thus far, the post mortem findings did not offer any explanation for the continuance of the pyemic state after the two operations and the conclusion arrived at at this time was, that the infection had become too general to be overcome by obliteration of its foci. And it was rather accidentally, than other-

wise, that the true cause was discovered. Owing to the pressure of time I did not at first intend to remove the temporal bone in order to preserve the specimen, but afterward decided on doing so, and during this procedure, after the big muscular layers on the posterior portion of the neck had been divided, we found a large abscess under the deep fascia of the neck below the splenius capitis and levator scapulae in the posterior cervical triangle. The abscess contained about two tablespoonfuls of exceedingly fetid pus. The digastric fossa was free from pus.

About an inch and a half upward, direct communication could be traced between the abscess and the lateral sinus through a very large mastoid foramen. (See cut). This abscess was without doubt the cause of the continued pyemia and fatal termination. No symptoms pointed to its existence during life. No redness, no swelling, no pain in the region. There is no doubt that its recognition and surgical treatment would have saved the life of the patient. Not as an excuse, but simply as a matter of fact, I will state that the patient had been seen daily, not only by myself, but by the aforementioned surgeon, and also by one of the most careful diagnosticians in our city. In spite of repeated consultations, the real focus of the pyemic infection was not discovered until the post mortem examination and even then was almost overlooked.

CASE II.—FRACTURE THROUGH TEMPORAL BONE. ACUTE SUPPURATION OF MIDDLE EAR. SECONDARY INFECTIVE THROMBOSIS OF LATERAL SINUS. OPERATION. RECOVERY.

History:—Geo. G., aged 26. Fell from a wagon upon his head on May 3, 1895. He at once became unconscious and was removed to the city hospital, where he lay in this condition for three days. His right foot, both hips and right side were bruised. A superficial scalp wound running longitudinally for about an inch, was found, one and one-half inches above the right auricle. There was considerable hemorrhage from the right ear, which continued for a week and a half. The wounds were dressed and healed. The ear was cleansed with hydrogen peroxide and the patient dismissed from the city hospital on May 24.

When he had arrived home, he complained of dizziness, and acted and spoke in a manner indicating to his relatives that he was anything but well.

I first saw the patient on the following day, and found the condition present as follows: Patient feels dizzy, his sensorium is benumbed, answers slowly, and sometimes not at all. No difficulty in articulation. No paresis nor paralysis. Had a rigor and chill yesterday, and one today. Temperature 102, pulse 106. There is a fetid discharge from the right ear. The walls of the external canal are so swollen, especially the posterior and upper, that no part of the tympanic membrane can be seen. The auricle projects outward and there is considerable painful edematous swelling over the mastoid region.

Diagnosis:—Fracture through temporal bone and tympanum, otitis media, and secondary infection of fracture-line from the otitis.

Operation May 26th.—The fracture-line in the squamous portion of the temporal bone was easily visible after detachment of the perios-

teum, passing from behind forward downward. Directly below the outer lamella of bone, and in the line of the fracture, there was an abscess as large as a bean. The antrum was found free. After cleansing of the cavities, some pus was noticed oozing slowly through a fine opening in the posterior wall of the cavity, which separated this from the lateral sinus. The bone was removed, a piece about [three-fourths of an inch long and one-third of an inch wide. The wall of the sinus presented an irregularly oblong opening. I am unable to decide whether this was due to a violation during chiselling, or to the fracture. No hemorrhage ensued, as the sinus was filled with a thrombus. The opening in the wall of the sinus was enlarged, and the thrombus, which was softened and covered with pus, was removed. A small hemorrhage resulted. After a careful cleansing upward and downward with a blunt spoon, the



Fig. 2.—From the inside. (f-g) the inner wall of the sigmoid portion, translucent, and allowing the hole in the outer wall to be seen; (e-f) horizontal portion of sinus, firmly closed by union of the walls; (g-h) patent portion of sinus below wound; (h) at this point, above the bulbus, firm closure by union of walls.

walls of the sinus were compressed with gauze.

May 27. Patient has had no chill, is more rational, but still somewhat drowsy. Temperature below 100 since operation. Pulse never over 88.

June 1. Temperature rose, for the only time during after treatment, to 103 $\frac{2}{3}$, but fell rapidly after change of dressing. The recovery was otherwise an uninterrupted one. The patient became perfectly rational four days after the operation. The wound was closed and the patient dismissed on June 26.

The discharge from the ear had ceased, and the perforation in the tympanic membrane had closed prior to that date. Hearing, $\frac{1}{2}$ at dismissal.

Patient has been recently heard from, and is and has been perfectly well since the operation.

Epicrisis.—The first case has been reported so minutely, because it is very instructive, and little need to be added. Whether or not the destructive process had invaded the lateral sinus at the time I proposed the evacuation of the mastoid cavities, and whether or not the fatal termination could have been prevented by an operation at that date, is of course an open question. It would have been more advisable to open the sinus at once after the mastoid operation, and I shall certainly proceed on that line in future cases.

The second case is interesting on account of its course. The fall caused a fracture of the temporal bone, extending near or possibly into the lateral sinus, and also a rupture of the tympanic membrane. The open tympanum was not protected sufficiently, and infective suppuration set in. From this focus the infection spread along the fracture-line, causing there at one point a small abscess, finally reaching the sinus.

There are few fields wherein the adoption of operative treatment has been so universal and the progress so rapid within this decade, as the treatment of cerebral complications of middle ear suppuration. The statistics afford the best proof of this.

The cases of sinus thrombosis in which operations have been performed up to September '93, have been collected by Arthur of Forselles, a series of twenty-five cases, with fifteen recoveries. Macewen's cases are not included among these, his book appearing at about the same time. The second set of statistics is given by Koerner in *Die otitischen Erkrankungen des Hirns, der Hirnhäute und der Blutleiter*, Frankfurt, '96. He reports 79 cases with 42 recoveries and 37 deaths. The literature at my disposal up to this year, furnishes the following table. In compiling it I excluded all cases which were complicated by cerebral abscesses, meningitis, or extradural abscesses at other localities, but include the cases where an extradural abscess was found in the immediate neighborhood of the thrombosed sinus.

Statistics.

| Author. | Reported. | Year. | No. of Cases. | Recov. ered. | Died. |
|---|-----------|-------|---------------|--------------|-------|
| Zaufal—Prag. med. Wochensch., p. 474 | 1884 | 1 | --- | 1 | |
| Hoffman—Deutsch. Zeitsch. f. Chirurg., p. 484 | 1888 | 1 | 1 | --- | |
| Lane—Clin. Soc. Transactions, p. 260 | 1889 | 1 | 1 | --- | |
| Salzer—Wiener Klin. Wochensch., p. 651 | 1890 | 2 | 1 | 1 | |
| Ballance—Lancet, l. p. 1057 | '90 | 4 | 2 | 2 | |

| Author. | Reported. | Year. | No. of Cases. | Recovered. | Died. |
|--|-----------|-------|---------------|------------|-------|
| Poulsen—Nordiskt medo Arkiv., 4, p. 45 | 1891 | 1 | --- | 1 | --- |
| Makins—Lancet, I p. 1259 | '91 | 2 | 2 | --- | --- |
| Hansberg—Monatssch. f. Ohrenk., 1 & 2 | 1892 | 1 | --- | 1 | --- |
| Parker—Berlin. Klin. Wochensch., p. 214 | '92 | 2 | 1 | 1 | --- |
| Jansen—Archiv f. Ohrenhk., p. 298 | '92 | 1 | 1 | --- | --- |
| Clutton—British Med. Journal, p. 807 | '92 | 1 | 1 | --- | --- |
| Scott and Lane—Lancet, I, p. 138 | 1893 | 1 | 1 | --- | --- |
| Cheatle and Pritchard—Lancet, I, p. 471 | '93 | 1 | 1 | --- | --- |
| Parkin—Lancet, I, p. 522 | '93 | 2 | 2 | --- | --- |
| Bircher—Centralbl. f. Chirurg., p. 483 | '93 | 1 | 1 | --- | --- |
| Sonnenburg—Centralbl. f. Chirurg., p. 443 | '93 | 1 | 1 | --- | --- |
| Forselles—"Lateralsinus-Thrombose." | '93 | 3 | --- | 3 | --- |
| Macewen, l. c., p. 332 | '93 | 17 | 13 | 4 | --- |
| Schwartz—Text Book, II, p. 844 | '93 | 4 | 2 | 2 | --- |
| Grunert—Arch. f. Ohrenhk., 36, p. 71 | '93 | 1 | 1 | --- | --- |
| Ballance—Lancet, II, p. 1387 | '93 | 1 | 1 | --- | --- |
| Bennet—Lancet, II, p. 1619 | '93 | 1 | 1 | --- | --- |
| Bennet—Lancet, II, p. 1001 | '93 | 1 | 1 | --- | --- |
| Harris—Lancet, II, p. 930 | '93 | 1 | 1 | --- | --- |
| Adams—Arch. of Otol., p. 183 | '93 | 1 | --- | 1 | --- |
| Jansen—Arch. f. Ohrenhk., Nos. 35 and 36 | '93 | 7 | 3 | 4 | --- |
| Lane—British Med. Journal, p. 561 | '93 | 4 | 4 | --- | --- |
| Jones—" " " " p. 563 | '93 | 1 | --- | 1 | --- |
| Vickery—" " " " II, p. 1144 | '93 | 1 | 1 | --- | --- |
| Marsh—" " " " II, p. 1145 | '93 | 1 | --- | 1 | --- |
| Buck—Trans. Am. Otol. Soc., VI., 1 | 1894 | 1 | 1 | --- | --- |
| Jack—" " " " VI., 1 | '94 | 1 | --- | 1 | --- |
| Crockett—" " " " VI., 1 | '94 | 1 | 1 | --- | --- |
| Schubert—Monatssch. f. Ohrenhk., p. 350 | '94 | 1 | 1 | --- | --- |
| Cleghorn—New Zeal. Ref. Brit. Med. J. May.. | '94 | 1 | --- | 1 | --- |
| Miller—Brit. Med. Journal, II, p. 71 | '94 | 1 | 1 | --- | --- |
| Walker—" " " " II, p. 1114 | '94 | 1 | 1 | --- | --- |
| Reinhard—Deutsch. Med. Wochensch., p. 203 | 1895 | 2 | 2 | --- | --- |
| Milligan—Lancet, April 20th | '95 | 1 | 1 | --- | --- |
| Jansen—Volkman's Klin. Vortrage, No. 130 | '95 | 9 | 5 | 4 | --- |
| Hessler—Arch. f. Ohrenhk., 38, p. 1 | '95 | 2 | 2 | --- | --- |
| Moos—Arch. of Otol., p. 41 | '95 | 1 | 1 | --- | --- |
| Morton—British Med. Journal, 5, Jan. | '95 | 1 | --- | 1 | --- |
| Abbe—N. Y. Med. Record, July | '95 | 3 | 1 | 2 | --- |
| Pitts—Lancet, August 10th | '95 | 1 | 1 | --- | --- |
| Spira—Wiener Klin. Rundschau, No. 30 | '95 | 1 | 1 | --- | --- |
| Holinger—Chicago Med. Rec., Dec. | '95 | 1 | 1 | --- | --- |
| Gradenigo—Arch. Ital. De Otol., III, p. 484 | '95 | 1 | 1 | --- | --- |
| Dahlgren—Arch. f. Klin. Chirurg., LII, p. 608, | '95 | 3 | 3 | --- | --- |
| Ventrini—il Policlinico, November | '95 | 3 | 2 | 1 | --- |
| Haug—Arch. f. Ohrenhk., p. 161 | 1896 | 1 | 1 | --- | --- |
| Koerner—l. c. | '96 | 1 | --- | 1 | --- |
| Voss, rep. by Koerner—l. c. | '96 | 5 | 3 | 2 | --- |
| Dencker—Monatssch. f. Ohrenhk., 9 | '96 | 1 | 1 | --- | --- |
| Wall—Annals of Otology, July | '96 | 1 | 1 | --- | --- |
| Ridley—Lancet, November 28 | '96 | 1 | 1 | --- | --- |
| Stewart—Lancet, November 7 | '96 | 1 | 1 | --- | --- |
| Adams—Trans. Am. Otol. Soc., VI., 3 | '96 | 1 | 1 | --- | --- |
| Deneh—" " " " VI., 3 | '96 | 1 | 1 | --- | --- |
| Zaufal—Prager, Med. Wochensch., N. 49 | '96 | 1 | 1 | --- | --- |
| Beck—Brunn Chir. Beitrage, XII | | | | | |
| Herzel—Budapest Com. '93 | | | | | |
| Krzywicki—Diss. Greifswald, '95 | | 7 | 2 | 5 | |
| Lanciai—Journ. de Lille, '92 | | | | | |
| Mischlich—Diss. Strassburg, '94 | | | | | |
| Weigel—Diss. Jena., '91, 2 cases | | | | | |
| Total | | 124 | 83 | 41 | |

NOTE:—1. Macewen, after reporting a number of cases in full,

These statistics show a moderate gain in our success. Forselles (25-15) gives 60 per cent., Koerner (79-42) 55 per cent., and my table (124-83) nearly 67 per cent. of recoveries.

This gain is without doubt due to an earlier diagnosis and operative interference. Such a percentage of recoveries in an affection which is nearly always fatal, if left alone, can be considered a noteworthy achievement of twelve years labor. The question upon which no unanimity of opinion has been reached, is the ligature of the jugular vein, first proposed by Horsley. I should have liked to include this point in my table, but it was impossible, on account of want of data in quite a number of instances. Koerner includes it in his statistics. In his 79 cases the jugulars were ligated 41 times, with 26 recoveries, not ligated 38 times with 16 recoveries, which rather favors the practice of ligation. But Jansen, in a table of 42 cases, comes to the opposite conclusion, and Macewen, with his unsurpassed success, has ligated the jugular vein only in a small minority of his cases, where it was found thrombosed. Of my cases, the one without ligation recovered, and in the other, the specimen shows that it was done unnecessarily. Altogether, this question cannot be solved by theoretical speculations, but by practical experience, and the numbers and data are not sufficient so far to arrive at a definite conclusion.

That a great number of sinus-phlebitis will recover after opening and evacuation of the septic material, without ligation of the jugular, is proven. The cause of this is without doubt the fact that many of the infective thrombi

states (i.e. p. 331), that he had operated upon twelve other cases which recovered, and continues:

"To these may be added ten cases of infective sigmoid sinus thrombosis which are reported under various headings, of which seven recovered after operation, in which the sinus was ablated. Though these do not appear in the statistical table, in order to avoid double entries—yet, if they be added to the others, it gives twenty-eight cases with eight deaths." Among these twenty-eight cases there are a number complicated by meningitis, cerebral or extradural abscess, which are to be excluded, and I was guided in my statistics by his own, given on page 332, where he states seventeen uncomplicated operative cases of otitic sinus thrombosis with the given results.

2. Among the seventy-nine cases with forty-two recoveries of Koerner's table, there are seventy-two with forty recoveries contained in mine. Of the remaining cases, I was unable to get the original, some publications being "Theses" and I have given them collectively on Koerner's authority, the numbers being arrived at by deduction.

are limited upward as well as downward by solid non-infected masses of coagulated blood, and the manner of healing is plainly illustrated by my specimen. But this is not always the case, and it is almost impossible to ascertain during the operation the true state of affairs. If the septic thrombus extends into the bulbus of the jugular vein, it is beyond our reach, and the jugular must be ligated. The question is least difficult in instances where the thrombus extends into the vein itself and can be felt as a hard string on the neck. Here it is best to ligate the jugular before opening the sinus. Based upon our knowledge at the present time, the following conclusions are warranted:

1. "The primary ligature of the jugular vein is justified in all cases of sinus-thrombosis.
2. "Where the bulbus or jugular vein is already invaded, it is indispensable.
3. "Where these parts are yet free, it might be omitted and performed secondarily, if the symptoms should necessitate it."

THOROUGH EXPOSURE OF THE TYMPANUM.*

BY É. J. MOURE,

BORDEAUX.

(Translated by H. A. Alderton, Brooklyn.)

From the operative point of view it is impossible to establish precise rules. Only general lines can be laid down. The object is to uncover the suppurating surface, that it may be curetted, easily cleansed, and thus cured. Therefore, the regions for operation are the posterior-superior part of the tympanum (attic region); the aditus, tympano-mastoid canal; the antrum and its annexes (mastoid cells). It is important to recall the disposition of the region and its anatomic relations (with their variations) in order to establish general rules.

Moure considers that in the adult with old chronic pathologic conditions the mixed type of mastoid is most rare, the process tending either to eburnation, or, on the contrary, hollowing into a cavity more or less vast, according to its contents (cholesteatomata, granulomata, etc.) It is undoubtedly true that in the adult old and chronic suppurations of the region modify its anatomic relations. The sclerosing process is, in Moure's opinion, one of the modes of spontaneous cure of old otorrhoeas (rare it is true, but possible,) which have disappeared after a variable duration. Unhappily, as a rule, "one can never tell where nor when an otorrhoea will end—Troelsch." The modern surgeon, therefore, suppresses the suppurating process, putting the patient beyond the reach of possible accident.

Indications for Operation.

Lubet-Barbon and Broca have laid down indications for operation in their volume, which might be called formal or obligatory; there are cases where there exists a chronic suppuration of the apophysis, a fistula which is the certain indication of more or less profound osseous lesion which should be exposed and treated by ordinary surgical

*Revue hebdom. de Laryngologie, d'Otologie. etc., May 1, 8, 15, 1897.

proceedings (large opening, curettage, cauterization with chloride of zinc in solution, etc.), as in otitis in a region where it might become a source of danger. Conservatism is out of place here, as it only exposes the patient to grave complications.

Moreover, the existence of a complication (cerebral abscess, sinus phlebitis) imposes the necessity of opening the antrum largely and, at need, of penetrating by the roof of the tympanum, or of the antrum, into the cranial cavity to drain an abscess, which frequently is discovered in this region. This method is indeed the most logical and certain, as it suppresses the cause (aural suppuration) and the effect; *i. e.*, the intra-cranial complication. Abroad they do not fear opening the lateral sinus purposely to drain and curette it. But this operation should generally be preceded by opening the entire antrum to expose the initial lesion.

Besides these urgent cases, there is a large number of others where operation is also indicated, but where the indications are not so evident to one little accustomed to aural examinations. These are old suppurations in which medical treatment is fatally disappointing. In vain are liquid applications, dry dressings, operations by the auditory canal (curettage, ablation of the ossicles). Apparent cure is obtained only to have the otorrhoea reappear after a few days. *Without doubt, the persistence of the suppuration in spite of the above treatment, and especially the persistence of the fetidity, constitute an operative indication as precise as those above mentioned.* The opening of the antrum is the more imperative if the objective examination reveals either the existence of a superior or posterior-superior perforation of the Mt., or masses of granulations presenting behind the attic wall. When these polypoid granulations have been carefully removed and are reproduced, it is certain that the disease has passed the tympanum, that the aditus and the antrum are affected, and should consequently be opened. The expulsion by the canal of caseous matter from the region of the attic, either spontaneously or by injection, is a valuable symptom in the matter of operating.

Conclusions—When a suppuration of the ear, treated directly by the auditory canal, resists medical and surgical treatment, it is certain evidence that the disease has ex-

ceeded the limits of the tympanum, and operation is indicated.

With greater reason, if there exist cholesteatoma, mastoid fistula, or otorrhoeic complications, should one act as quickly as possible.

Method of Operating.

It is ordinarily impossible to say in advance what position the antrum occupies, its size, or its anatomic relations.

The two methods of operating reach the same result, but in a different way; the one (Stacke's,) by way of the tympanum enters the antrum, and the other (Schwartz's,) by way of the antrum reaches the tympanum. Doubtless the latter method is preferable in cases where the antrum occupies its normal position, as, being once opened, it allows the operator a large cavity through which he can easily advance through the aditus to the tympanum. In suppurations with cholesteatoma and in young children, where constancy of the antrum is the rule, it is incontestably the preferable method. Accident to the sinus is relatively easily avoided.

The operation proceeding from the tympanum to the antrum exposes the facial to wounding more than the other.

It is possible that after deciding upon one method, it is found necessary to adopt the other; it is thus well not to be exclusive, the common object being the clearing out of the process.

The *spina supra meatum* will form the superior boundary of the opening made in the bone. In chiselling the bone, cut from behind forward so as to avoid the sinus, always expecting to find it.

The combined use of the gouge and the electric drill in operating on the bone is recommended.

If the space between the posterior canal wall and the lateral sinus is too small to permit of a search for the antrum (Schwartz's method), which may be difficult to find, then protect the sinus and employ Stacke's method, starting from the tympanum.

One should search with the probe, removing all unhealthy tissue, reaching with the curette healthy bone, white like ivory. If the process is cancellous, the cellules should all be united into one.

After uniting the antrum and tympanum, the latter should be thoroughly cleansed by removal of granulations and ossicles, and washed out with chloride of zinc solution, 1 to 10, which cleans the surface well and induces hemostasis, permitting the bared region to be quickly seen.

If the sinus is opened during an operation, the artificial orifice should be stopped with sterilized iodoform wax or gauze, to remain three to four days in place, and the operation continued.

Stacke's method has the advantage of avoiding the sinus, but it exposes the facial and the horizontal semi-circular canal if the assistant who holds the metallic protector does not exercise sufficient care.

After Treatment.

Moure's Personal Method.—The osseous wound is sprinkled with iodoform, and then packed with iodoform gauze. In Stacke's method, if a small antrum be found, it is unnecessary to maintain a mastoidal orifice and the wound is immediately sutured, and healing has been rapid. On the other hand, where the region is largely exposed, or when it is cholesteatomatous, a posterior opening may be left for observation. All methods of transplantation which make use of the cartilaginous canal are useless, because the strips do not always remain where first placed, are subject to inflammation, which contracts the lumen of the canal, at least temporarily, rendering further dressing difficult and often painful. Then, too, the wound often suppurates and the portion of the canal which adhered at first becomes detached and covers disagreeably the surface exposed by operation. Personally, Moure prefers the method which consists in removing the cartilaginous canal close to the concha and then suturing directly the auricle to the posterior lip of the mastoid wound. No ugly scar results and all dressings are made through the canal, which remains well open. Moure deems a permanent mastoid opening unnecessary, and experience alone can determine when this orifice may safely be closed. Where the mastoid is left open for years, the orifice may be successfully covered by auto-plastic operation.

It is best to abstain from injections if possible, and to dry out the wound with tampons of cotton saturated with alcohol and boric acid. Sometimes, in spite of all precautions, it will suppurate and granulate; rigid antisepsis is then necessary. In cases where there is no pus, weekly or semi-weekly dressings are sufficient. Cure takes place in from five weeks to five months. Do not allow the passage to close until the antrum is perfectly healed.

Hearing is often better than before the operation, and Moure has never known it to grow worse.

Out of 59 cases operated upon, only 1 death could be traced to the operation.

ADENOID GROWTHS IN DEAF MUTES; TOGETHER
WITH SOME OBSERVATIONS ON THE
ETIOLOGY OF DEAF-MUTISM.

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Since the time when W. Meyer, of Copenhagen, through his own pioneer work, called general attention to the frequency and importance of adenoid growths in the nasopharynx, this same condition has been described frequently by numerous writers on very just grounds; for in face of such apathy as is at present manifested by the large number of rhinologists and laryngologists, it is necessary continuously to raise one's voice and to call attention to this condition, which is so frequent in occurrence and so serious in its results. It is for this reason that I can easily endure the reproach frequently made to me of writing upon a disease that has already been described so often and by so many more competent observers. Indeed, the thorough pathology of adenoid growths is far from being exhausted; and for this reason every article upon the subject cannot but be of value, both for revealing its importance, and for the benefits of the patients themselves. In the onset I may say that I will confine myself to one point, viz., to the hardness of hearing or deafness in consequence of adenoid growths, and will limit myself to the question as to whether it is possible for deaf-mutism to develop as the result of this affection. It is theoretically well known that a child can become deaf in this manner, either not acquiring speech or after acquiring forget it; *i. e.*, a child who has been born with adenoids or one that has acquired them during the first years of life through pathological changes which stand in some relationship to these growths concerning which it is not necessary here to go into detail. If that is so, then it would naturally be expected that we will find a much higher percentage of adenoid growths in the deaf mutes than will be found in other, perfectly healthy individuals of the same age.

How often adenoid growths are found in seemingly healthy children has been a subject for discussion on all sides. W. Meyer, in Copenhagen, among 2,000 school children found adenoid growths in only 1 per cent. Doyer, in Leiden, found them in 5 per cent. of the children. Later observations have given a higher percentage; Schmeigelow, of Copenhagen, in 1886, found among 581 children, adenoids in 5 per cent. in the higher grades, and 13 per cent. in the lower grades. Wroblewski (1) in his statistics, among 650 apparently normal individuals, found adenoid growths only 45 times, *i. e.*, 7 per cent.; Kafemann in 9 per cent.

The examination of the naso-pharyngeal cavity in deaf mutes furnished on the other hand surprising results. Lemcke (2) found changes in this cavity, especially among deaf mutes in 58 per cent.; in 26.8 per cent, these changes could be diagnosed as the direct cause of the deaf-mutism. Aldrich found, among 100 cases, adenoid growths 73 times as the cause of deafness.

Wroblewski examined, at the Warsaw Institute, for deaf mutes, 160 inmates, 92 boys and 68 girls, in order to satisfy himself how often adenoid growths occurred among such inmates and what part they played in the etiology of this defect. He found such growths in 92 of the inmates, *i. e.*, in 57.5 per cent.. in 52 boys, (55.4 per cent.) and in 40 girls (58.1 per cent.)

The same author cites a thesis written by Peisson, of Paris, on adenoid growths. Peisson examined 100 inmates of an orphan asylum in Paris and found adenoids in more than half of the cases, which were attributed by him to be playing an important role in the causation of deaf-mutism. He believes that, in cases where deaf-mutism is hereditary one should not look for the cause in old meningitis or meningo-labyrinthitis, since these conditions are not hereditary, but he should look for the cause in adenoid growths. Wroblewski explains the origin of deaf-mutism in cases where there are adenoid growths thus: Since these growths develop in the very earliest years of childhood and are especially localized at the pharyngeal orifices of the eustachian tubes, these latter become occluded, and in this manner deafness is produced; a child which does not hear cannot learn to speak. We have many proofs of the fact that adenoids can develop in early childhood. Semon (3) from the examination of 56 cases, five being between

1 and 5 years, is persuaded that this condition is often present at birth. It is a well known fact and needs no proof, that the presence of adenoid growths affects the hearing. Halbeis (4) found 53 per cent. diseased among the cases of adenoid growths who consulted him exclusively for the ear trouble, and who had no intimation whatever of a diseased condition of the naso-pharynx. A yet higher percentage was found by Meyer, namely, 75.8 per cent., and Hartmann found 74.8 per cent. of the adenoid cases complicated with some affection of the ear.

I have in the last few months (February to May, 1896,) with the kind permission of the Director of the Prague Deaf and Dumb Institute, P. Knoch, and the consulting physician himself, Prof. Neureutter, made an examination of the inmates and pupils of this institution in toto 159, in order to satisfy myself as to the frequency of disease of the nose, naso-pharynx, especially the ear. My statistics comprise 94 boys and 65 girls, from the ages of 6½ to 10 years; from this number one boy must be excluded, who could not be examined either by posterior rhinoscopy or palpation, on account of the strenuous resistance which he offered, so that there remained 98 boys and 65 girls—in all, 158.

Hypertrophy of the pharyngeal tonsil was found in 56 (60.21 per cent.) boys, and in 38 (58.46 per cent.) girls, together in 94 (59.49 per cent.) among those who were both deaf and dumb. The hypertrophy was diagnosed in 119 (75.31 per cent.) by means of posterior rhinoscopy, and in 39 (24.69 per cent.) by means of palpation. But it must here be noted that only such cases were placed in this number in whom by means of posterior rhinoscopy, it was found that the hypertrophied third tonsil covered the upper portions of the choanæ and the septum or at least in profile encroached upon their edges, or such as showed a decided narrowing of the post-nasal space by means of palpation; while those cases in whom the lymphoid tissue was only moderately elevated above the surface of the remaining mucous membrane were not included under the head of hypertrophy. Had such cases been included, then the percentage would have been still greater. Other conditions which were present at the same time are of interest, and therefore will be reported.

Gross anomalies of the ear were found in 58 patients, 36.48 per cent., as follows: Most frequent was cerumen in

external canal (24); next chronic otorrhea with granulations (14), and marked drawing in of the drum-membrane (12). Besides these there were found: Stenosis of the external canal (1), atresia of the auditory canal (1), foreign body in the canal (1), adhesion of the drum-membrane to the inner wall of the tympanic cavity (1), hyperemia of the drum-membrane (2), scar in the drum (1), chalky deposit in the drum (4), dry perforation (3), complete destruction of the drum following otorrhea (4), polypus (3), scar on mastoid process after periostitis (1). If we take from these 58, cases those in whom besides cerumen, no other pathologic changes were recognizable in the ear, together with the case of foreign body, making together 16, then there remained 42 cases with more or less marked changes, mostly chronic purulent discharges or the remains of a previous inflammatory process.

Among these 42 cases I found not less than 37, (88.1 per cent.) with adenoid growths.

This remarkable frequency of adenoid growths in deaf-mutes is certainly not accidental, but it must be considered with great probability that they stand in some causal relationship to deaf-mutism. That it is so simple as believed by Wroblewski, is certainly not the case; rather might we conclude that the adenoid vegetations favor the presence of an affection of the middle ear and labyrinth, especially at the time of the appearance of an infectious disease, following which deaf-mutism is notoriously frequent and which is always more or less complicated with diseases of the nose and throat. These growths, namely, sometimes as carriers of various germs lurking in the lacunæ, and at other times as a part of the lymphatic system, especially aid the passage of these germs into the deeper parts of the temporal bone.

The question now naturally arises, whether it would be possible, by means of early and proper treatment of diseases of the nose and naso-pharynx, especially in cases of adenoid vegetations, to prevent the appearance of early deafness. On this point numerous authors have spoken in the affirmative. Roller (5), Lemcke (6), Burkner (7), and others. The last author in his text book under the caption of deaf-mutism says: "While proper treatment for deaf-mutism can only exceptionally come into consideration the question of prophylaxis is of the highest importance." If a proper and timely treatment was insti-

tuted in all ear affections in infancy, and especially in those resulting from scarlet fever, measles, and the other infectious diseases which by their presence predispose to disturbances of hearing, then one might be able in a goodly number of cases to prevent the development of this two-fold affliction. It need hardly be mentioned that a thorough and timely removal of the adenoid growths constitute the rational treatment of ear diseases, in that these growths form, as it were, a bridge over which the pathological elements pass, in order to reach the inner parts of the ear. In a like manner this agrees with the opinion of Bliss (8), who examined 546 school children and came to the conclusion "that the lessons drawn from these statistics and those of other observers, have reference to the prevention of deafness in early childhood." Bliss has observed that with the exclusion of those unfortunate victims who have inherited a weakened constitution or disease, to which class the congenital deaf-mutes probably belong, there was a large number of individuals whose complete deafness (and therefore the resulting mutism) had been early developed and in the beginning has evidently been of such a nature that restoration of the parts might have been possible if only the condition of the ear had been recognized and properly treated.

From all this it is apparent that diseases of the nasopharynx, especially adenoid vegetations, play an important part in the production of deaf-mutism, and that if due attention was paid to this in early infancy the number of deaf-mutes could in time be greatly decreased.

It would be well to require the examination of every child for this condition, both immediately after birth as at intervals later, up to the age of 7; and if necessary it should be required that all physicians, especially those who have control of public hygiene, become more familiar with the pathology and treatment of diseases of the nasopharynx than has unfortunately been the case up to the present. Yet not only as Burkner, Bliss, Lemcke, and others have pointed out, can one contend with deaf-mutism, but even the possibility must not be forgotten of managing with good results a fully developed deafness by means of proper treatment not only of the ears where the lesion exists, but also of the pathological condition of the nasopharynx, especially of adenoid growths; for if the deafness cannot be completely cured it can at least be

markedly benefitted, therefore, also the deaf-mutism. At least Arslan (9) reports that he found among 426 cases of adenoids 6 deaf-mutes, of whom 2 especially improved after the operation; some of these immediately after the extirpation of the growths began to speak and to hear remarkably clearly. It is true that this number is small, yet sufficient to excite a further investigation of so important a subject. Naturally, this deduction must not be made as if I meant that by immediate extirpation of adenoid growths all danger of deaf-mutism would be removed, but I believe with other authors that when this is done an important obstacle would be removed, and that, therefore, in many cases, be it on account of hereditary taint or other conditions, those inclined to deaf-mutism can be relieved of this affliction. Furthermore, I believe in very many cases healing would take place, for it is my conviction that deaf-mutism in the majority of cases arises from acquired deafness, which indeed constitutes a large number.

In order to substantiate this opinion it is only necessary to bring forward the statistics of deaf-mutism and the results up to the present time of patho-anatomical investigation obtained through autopsies made of deaf-mutes and from these to draw a logical conclusion.

It is well known that deaf-mutism can occur in a two-fold manner, viz., either the child will be born deaf, or it will become deaf later, and in this latter case, either before it has learned to speak, and in that case must it naturally remain dumb just as one born deaf, or becomes so in the first years of life, although it has spoken a little, in which case the speech will not only cease developing, but sooner or later will be entirely forgotten—the child will become dumb.

The relationship of these two groups of deaf-mutism to one another is very variable, according to the different statistics; thus we find in the statistics of Wilhelmi-Hartmann (10) from the year 1874-75 in Pommerania there were met with 592 deaf-mutes who were born deaf and 1031 who had acquired deafness; on the other hand there were found in France, according to the census of 1876 (10), 16,127 who were born deaf and 5,268 of acquired deafness; Falk (11) found among 152 deaf-mutes 69 who were born deaf and 79 who had acquired deafness and four of whom it was uncertain whether they were deaf from birth or had first become deaf after birth. In Ireland, according to the

census of 1881, there were 3,092 deaf-mutes who were born deaf and only 753 who later in life became deaf; Hartmann (12) found in 1880 that of 2,658 deaf-mutes one-half were born deaf. Later, in 1882, Hedinger found 44 per cent. Schmaltz, in 1884, 49 per cent.; Chr. Lemecke, in 1886, 28 per cent.; Uchermann, in the same year, 34 per cent. deaf-mutes who had acquired deafness. Mygind found among 210 patients who had visited the ear clinic of W. Meyer in Copenhagen during the course of 20 years who either had been deaf from birth or had become deaf in the first years of childhood, that 125 had become deaf after their birth, and in 31 it was not possible to say absolutely whether the deafness was congenital or acquired, and that 54 children (25.7 per cent.) were born absolutely deaf. In my own statistics I find among 159 deaf-mutes that 75 were deaf from birth, and that in 64 deafness took place after birth, and that in 20 the time could not be determined. This marked difference in the relationship between mutes born deaf and those who have acquired deafness, as seen in the various statistics is, according to Mygind, due not only to the fact that the material at hand for these statistics has been very varied in character, although particular care was exercised in the very difficult point of deciding who of the deaf-mutes had been born deaf and who had become deaf, but also, and perhaps quite as much to the fact that the acquired deaf-mutism was produced by forces which exist in unequal degrees at various times even in the same geographical boundaries. The chief cause for this difference might lie in the fact that the decision whether in given cases the deafness is congenital or acquired after birth is possible almost exclusively on the ground of a complete history as to dates; then a most important point is whether or not the child had heard immediately after birth cannot always be positively known, in consequence of which the statistics above are more or less unreliable. In the etiology of deaf-mutism certain conditions play an important role which stand in close relationship to procreation and intra-uterine life of the individual and which we will now merely mention: 1. Heredity. 2. Consanguinity of parents. 3. Age, and difference of age in parents. 4. Unfavorable social and hygienic relationship. 5. According to many authors, among them Meyer, geographical relationship, since in the mountainous regions, for example, in the Alps, many more deaf-mutes are

found than in the flat country; but the question is well warranted whether the social and material relationships do not come into play which in the mountain regions are far more unfavorable than on the plains; to which also Schmaltz (13) refers. (6). Disease of the parents, especially syphilis and tuberculosis, (7) damaging malarial impressions at the time of pregnancy. If these conditions to which Mygind has called attention, and which cannot be well doubted, play such an important part in the etiology of congenital deaf-mutism, then on the other hand, we cannot say with complete assurance, whether these same are able to act also as causes of acquired deaf-mutism, although they certainly give the individual a disposition to premature deafness during his lifetime. At the present time all otologists who have to consider deaf-mutism in their practice are certainly convinced that the above etiological causes hold good for congenital as well as for acquired deafness. But whether the conviction does not arise at least partly from the difficulty of deciding whether a certain case is congenital or acquired deafness is a question which presents itself, and as yet is difficult to answer. To these more remote must be added those causes more direct of congenital deafness, that is, a defect of the whole organ of hearing, or an important part of the same, resulting in arrested development. Then are mentioned various intra uterine diseases, especially fetal meningitis, which will leave behind lasting changes in the labyrinth. To the special causes of acquired deaf-mutism belong the various diseases of childhood from which the organ of hearing suffers such changes, be it in the labyrinth or in the conducting apparatus, that either total deafness or at least such a degree of deafness results that the child does not hear the speech, and in consequence does not learn the same, or that it forgets again what it could already say. These are:

(a). Acute disease of the brain; meningitis simplex and meningitis cerebro-spinalis epidemica, with which labyrinthitis is often complicated. Whether it is an idiopathic labyrinthitis or otitis interna, according to Valtolini's idea has not been proven, since it is always possible for it to be a question of inflammation of the meninges, which extends along the nerves and vessels to the labyrinth.

(b). Infectious diseases, especially the exanthemata, as scarlatina, measles, variola, then diphtheria, erysipelas, influenza, malaria, parotitis epidem. and tussis convulsiva.

Here there are two possibilities: either the middle ear becomes diseased from an acute suppurative inflammation, and then there would result an extended destruction of the drum membrane, the ossicles and secondary inflammation of the labyrinth, or the middle ear can remain normal and the whole process be confined to the internal ear.

(c). Constitutional and inherited diseases, as scrofula, rhachitis, inherited syphilis.

(d). Pneumonia, acute rheumatism, injuries.

(e). Genuine diseases of the organ of hearing. To this belongs the above mentioned otitis intima of Voltolini, but more especially independent disease of the middle ear and the labyrinth if they lead in their results to such anatomical changes that the perception of tones is elevated (destruction of the ossicles, ankylosis of the stapes, obliteration of the round window, secondary changes in the labyrinth).

If we now turn to the results obtained from the patho-anatomical findings in deaf-mutes who have died, then we will see that the material has been most thoroughly collected and sifted by Mygind (14) who has especially rendered a great service through his numerous writings upon this important subject.

Mygind revised Toynbee's list from 1860, Moos' from 1866 and Hartmann's from 1880 and added to these yet 61 more cases which had become known but which had not been incorporated in the above lists, partly old cases and partly new ones, cases published from 1880 to that time, so that in 1890 he analyzed 118 anatomical specimens taken from deaf-mutes. From a study of these, according to the reports of the authors, deafness was congenital in 32 cases and acquired in 23, while in 63 this point could not be settled. By a critical analysis of the histories and dates, Mygind was able, as he declared in another work appearing the same year, to affirm that 46 could without doubt be placed in the category of congenital deafness. On the grounds of a thorough examination of the patho-anatomical specimens of these 46 cases, Mygind came to the following conclusions: "The actual specimens up to the present of those who have been born deaf have shown marked changes frequently in the middle ear; in most of the specimens pathologic changes attacking the middle ear were found also at the same time. These changes showed themselves more especially in the semi-circular canals, next in

the cochlea, less frequently in the vestibule. Cicatricial band formations were most frequently observed in the cochlea, seldom in the other portions of the internal ear, and upon the whole not with any marked frequency (perhaps in about 19 cases). The auditory nerve was entirely absent in some cases and in others it showed signs of atrophy, or degeneration, while in quite a number of cases it showed absolutely no changes. A few times the brain showed some signs of deviation from the normal."

On the whole the observations above show us that in the anatomical specimens from deaf-mutes whose history shows that they were deaf from birth, in the large number of cases pathological changes were found which consisted in an inflammatory process.

In regard to the pathological changes in deaf-mutes who had acquired deafness after birth, to which doubtless most of those belonged from whose history it was impossible to find out whether the deafness was congenital or acquired, there was likewise found the most varied changes in the middle ear, labyrinth, auditory nerve, as well as in the central nervous system. In the 118 pathological specimens which Mygind counted and which contained all the sections taken from deaf-mutes in both the congenital and acquired forms which had been known up to 1890, there were found 79 cases, about two-thirds pathological changes in the middle ear, but only in 19 of these were no changes found simultaneously in the labyrinth or central nervous system. Possibly some cases were wrongly referred, but even according to these calculations there yet remained enough to demonstrate that deaf-mutism can have its causes exclusively in pathological changes of the middle ear.

Changes in the labyrinth were found in 80 cases, some of them, however, being very slight, *e. g.*, widening of the aqueductus vestibuli. The vestibule and cochlea were in about 40 per cent. of the cases, pathologic, the semi-circular canals in 56 per cent., and in 20 cases they showed changes only in the ampullae; besides these there were 8 which showed other changes in the auditory apparatus. An outgrowth of bony tissue was frequently found which either narrowed or completely filled the openings of the semi-circular canals, or the remaining portions of the labyrinth. Such abnormalities as defects in growth were on the whole seldom found in the labyrinth, with the exception of the cochlea.

After this publication, further contributions appeared on the changes found in pathological sections made from deaf-mutes, from the pens of von Uchermann, Scheibe, Mygind, Larsen-Utke, Habermann and others, so that in 1894 Mygind, in his classical monograph upon deaf-mutism (16), collected the reports made from 150 sections, of which number he only mentions 139, since after a critical analysis there were some which showed no positive results of the points in question. Of these 139 36 were said to have been born deaf, 33 had acquired deafness, and in 70 the statement was absent as to what time of life the deafness commenced. The anatomical changes found arranged in series of single sections of the organ of hearing were in brief as follows:

Ear Muscle and Auditory Canal.—Congenital, well-marked abnormalities were never shown, by the anatomical sections; but by observing deaf-mutes during life they were sometimes seen. Unimportant congenital anomalies of the organ of hearing as well as those occurring after birth were more frequently found.

Middle Ear.—The drum-membrane was found abnormally small in one case only, and once it stood horizontal. Perforations more or less complete defect of the drum-membrane were frequently observed as the result of previous suppuration, besides showing old scars and chalky deposits on its surface. These changes were found in those of acquired as well as in those of congenital deafness, and they were explanatory of the then existing deafness without comment. A congenital defect of the drum-membrane has not been observed in the sections made from deaf-mutes.

Labyrinth Wall.—There were found narrowing of the fenestra rotunda, a filling out of the niche with cicatricial tissue, the membrane over the round window thickened or thinned, and in some cases totally destroyed. The round window was sometimes absent or was closed with bony tissue, especially in those born deaf. Only in a single case was the opinion well founded that the defect of the round window could be conceived as a congenital defect since the scala tympanum in that case opened into the vestibule. In all the other cases the cause could be attributed to an inflammatory process of the bone. These bony changes appear, according to Mygind, usually first after the birth, but they can also be developed in utero. The

oval window experienced a similar closure through this bony outgrowth only in about half of the cases, and indeed mostly at the same time with like changes in the round window. Still further, the oval window showed narrowing or blocking up with membranous tissue. The promontory was absent in some cases, but only once simultaneously with the cochlea.

Contents of the Middle Ear.—Complete defect of the ossicles was not infrequently observed, but only in one case (Montain's) could one attribute this defect to arrested development, for in all the others this defect occurred in consequence of inflammatory suppurative processes occurring after birth. Sometimes only the hammer was absent, or only the anvil, and sometimes both. The stapes was absent in some cases, yet in only one case could it be held that the stapes was not developed (Michel), for on the other hand destructive processes had shown their effect upon the tissues around. Atrophy of all the ossicles or of only the hammer and anvil is probably a congenital anomaly. Various deformities of the ossicles, especially of the stapes, can be the result of a fetal as well as a post-fetal process. Ankylosis of the ossicles were the most frequent pathological findings of all among deaf-mutes. In addition to these, changes are usually found in the labyrinth. Complete defect or degeneration of the muscles within the tympanum were sometimes found, as abnormalities. In some cases the chorda tympanum was absent. Changes in the mastoid process were found as secondary after inflammation of the middle ear and labyrinth. A defect of the mastoid process as a congenital anomaly was observed by Michel. Pathological changes of the eustachian tube were likewise secondary and without special significance. As is to be seen from the above, the changes in the middle ear were only exceptionally the result of an arrested development and in most of the cases they were the result of inflammatory processes or the resulting exudates. Most frequently, namely, in about one-fourth of all cases the round window showed some anomalous changes. But the changes in the middle ear were for the most part accompanied anomalies of the labyrinth.

Labyrinth.—Complete defect, unilateral or bilateral, has been quite frequently observed. Most of the authors, among them Swartz and Moos, have held these anomalies always to have been the result of an arrested devel-

opment. Mygind (17), however, has shown that this can also happen in later life, and in fact on account of the accumulation of bony tissue in the cavities of the labyrinth in consequence of inflammatory processes—so that the normal contour will be completely lost. These bony excrescences in the whole, or a portion of the labyrinth, are most frequently found in the labyrinth of deaf-mutes. Sometimes excrescences of chalk or cicatricial tissue have been observed; and also there were found fat, cheesy, gelatinous masses, besides pigment and round cells. Indeed, a complete or partial defect of the labyrinth can give the impression of an arrested development, and it is often hard to be certain, only in the case of Michels, where the whole pars petrosa was completely mal formed, was it possible to tell with certainty; perhaps also could it be told in the case of Montain, where also the labyrinth was absent and where the deafness was probably congenital. In other cases it was evident from the history that the deafness came on after birth, in the third or fourth years of life, as a result of meningitis, purulent inflammation of the ear, with caries of the mastoid and after scarlet fever. These changes in the labyrinth arise often by extension of the inflammatory process from the tympanum, especially in scarlet fever; yet sometimes every trace of middle ear inflammation is lacking, and also the past history gives no positive information, so that one must conclude that extension of the diseased process to the labyrinth has taken a round about way, namely, by way of the meninges. Finally, the existence of a primary inflammation of the labyrinth, the otitis intima of Voltolini, is at least possible. This as yet has not been proven, nor can it be proven. Michel found a complete defect of the membranous labyrinth. Changes in the vestibule have been seldom observed, and indeed, always with simultaneous changes in other parts of the labyrinth. The findings in congenital and acquired deafness are the same, viz.: the filling up of the vestibule with bony tissue or only the production of a narrowing of the same; thickening of the periosteum, or an enlargement of the vestibule. The membranes within the vestibule have sometimes been found changed; the saccules were thickened, and on their walls as well as within the cavity were found small bodies, as otolith, pigment, chalk, hyaline masses *detritus*—in short, showing signs of an old inflammatory process. The

aqueductus vestibuli was either absent or closed, and quite frequently was it enlarged, especially in conjunction with changes in the cochlea. This enlargement has been found in congenital as well as in acquired deafness, and for this reason is of small importance. "The presence of these abnormalities in cases of acquired deafness," says Mygind, "seems to indicate that the canal continues back into the arachnoid space, from which point inflammations can extend through the canal of the vestibule into the labyrinth. From such a condition of affairs it is perhaps possible in these cases to conclude where the anatomical sections point to the same conclusion that the affected individual has suffered from a fetal meningitis—a form of cerebral inflammation which was often given as a cause for congenital deafness, and the same which has been strongly insisted upon, especially by H. Meyer, mainly on the strength of one specimen from which sections were made by himself alone. Finally, Habermann holds that a widening of the vestibular canal on account of increased pressure produced through Hydrocephalus, can exist, especially if the petrous bone is the seat of rachitic changes." Anomalies of development were observed by various authors, but they were frequently of no consequence in producing the deafness. For example, the running together of the ends of two semicircular canals, or the shortening of one. The canals were most frequently the seat of pathological changes in more than half of all cases.

A frequent condition found was the blocking up of the semi-circular canals with bony tissue, chalk, fibrous tissue, or other inflammatory products. In one-fifth of the cited cases the semi-circular canals were the exclusive seat of pathological changes. On account of this bony outgrowth the contour of these canals was in many cases completely changed, which was especially so in those cases where it was held that an opening into the canals, or at least a portion of it, was absent. Where only one or two of these canals were in this manner changed, it was most frequently the posterior and then the posterior and superior. Perhaps the reason for this lay in the fact that the ampulla of the posterior canal stands nearest the round window through which the inflammation passes from the middle ear to the labyrinth. Bony outgrowths in the canals were found in those who pretendedly had been born deaf, as well as in those of acquired deafness; for this reason the

author holds that in the congenitally deaf these processes are the result of fetal inflammation.

Pathological changes in the membranes within the semi-circular canals have been observed in some cases; defects of the same, colloid bodies, pigment, numerous otoliths, etc. The cochlea shows somewhat more frequent changes than the vestibule and also oftener in those who were congenitally deaf than in those of acquired deafness. Usually other parts of the internal ear showed pathological changes, especially the semi-circular canals. Cases in which the cochlea had only one and one-half turns and terminated above in a large cavity whose size represented even that of a well developed cochlea, were at first held to be as arrest in development, but this was a mistake, for if the development of the cochlea was hindered, then it would remain with the one and one-half turns without any further development of the same. A cochlea formed as above must be considered as representing pathological change, changes which in many cases have sprung from a fetal inflammation. Sometimes the interior of the cochlea was developed as a large cavity without any signs of the normal bony contents and that occurred especially in individuals who were either held to be born deaf or were obliged to be considered so on the ground of various anomalies of growth which were simultaneously observed. The most frequent anomaly of the cochlea was the more or less complete filling up of the same with bone or chalk occurring in about one-eighth of all cases. Next to this was observed: connective tissue, round cells, cheesy masses, otoliths, colloid bodies, fatty masses, detritus, etc. Often the changes were found only on the membranes within the cochlea. Defect, atrophy or destruction of the nerve or ganglion cells; only in one case were anomalies of growth demonstrated by a microscopical examination of the cochlea. In most of the cases pathological changes were found in other parts of the labyrinth, especially in the semi-circular canals and in the acoustic nerve simultaneously with those of the cochlea. Changes found by section of the *aqueductus cochleæ* were mentioned in only a few of the histories.

Auditory Nerve.—Pathological changes were quite frequently found: twice was there a complete defect, however, this occurred in only one case (Michel), the result of an arrested development. Most frequently there was

observed a complete or partial atrophy or degeneration of the whole auditory nerve or one of its branches, viz.: in half of all cases. In some cases the nerve had a gelatinous and even a pulpy appearance; in others it contained amylaceous and chalky bodies. In some cases only a portion of the nerve was atrophied, *e. g.*, the *ramus vestibularis*, the *ramus posticus Retii*, etc. In many cases the nerve was completely normal; from this one may conclude that the auditory nerve is by no means prone to degenerate or to atrophy in consequence of inactivity; much rather does it appear that atrophy and degeneration of the auditory nerve in deafness have another cause: it is this, according to the views of previous authors that the condition of the auditory nerve is in consequence of a centripetal atrophy, or degeneration, following a destructive process in the labyrinth, or a centrifugal atrophy or degeneration following disease of the central nervous system.

Central Nervous System.—Pathologic changes, except such as are purely accidental, were seldom observed in sections taken from deaf-mutes and their significance in cases of deaf-mutism was in a great measure of doubtful character. Among the changes found were: In the fourth ventricle abnormal origin of the auditory nerve, defect in the auditory striae; thickening of the ependym, with shrinking of the nerve tissue beneath. In the cerebellum, Oppolzer and Dlauhy found atrophy in one case which, however, had shown signs of insanity during its lifetime, and for this reason was not a clear case. In the cerebrum was noted: superficial atrophy of some spots in the parietal lobe around the cuneus, together with atrophy of the brain fibres from this point down to the optic thalamus. Then came superficial atrophy in both of the posterior convolutions, hyperplasia of the neuroglia in the posterior part of the optic tract, thickening of the walls of the third ventricle and serous infiltration at the origin of the auditory nerve. In some cases the third left frontal convolution was imperfectly developed, producing the impression of an inactive atrophic process in the speech center.

The *pars petrosa* showed pathological changes in some cases. In Michel's case the petrous bone had only two surfaces instead of three, one above and one below, and the auditory nerve was completely absent. In other cases the petrous bone was abnormally large or abnormally small. The posterior semi-circular canal in some cases

was only covered by the dura. Most frequently there was found an abnormal hardening or a complete sclerosis of the whole petrous bone, or a portion of it, both in those of congenital as well as in those of acquired deafness. This probably had its origin as a result of fetal or post-fetal otitis. The internal auditory meatus was found narrowed in some cases. To this chapter upon the pathological anatomy of deaf-mutism which has been briefly referred to, Mygind adds the following conclusion: "The abnormalities found above in the cases of deaf-mutes can very naturally be explained in many cases as being the remains of a very intense and extensive inflammatory process. This relationship is well marked, especially in those cases of deaf-mutes who have acquired deafness. Furthermore, it is evident that anomalies found in those cases of acquired and those of congenital deafness, often have the same appearance. For this reason, on the grounds of a purely patho-anatomical investigation, it is impossible to say whether the changes found by means of sections are of a fetal or post-fetal origin. It shows, moreover, that the earlier and almost universal opinion has not been established, namely: that the deaf-mutism which was dependent upon congenital deafness in reality had its origin from congenital anomalies in the development of the organ of hearing; for abnormalities which appear as an indubitable expression of such anomalies of development are only exceptionally found in deaf-mutes. It has been shown, furthermore, in reference to the location of these abnormalities found among deaf-mutes that in by far the larger number of cases they have appeared bi-lateral, although each side has shown a great variation in character and localization, but especially a difference in intensity. Finally, it can be proven that the middle ear has been very often the seat of changes. Very frequently, however, abnormalities were found encroaching simultaneously upon the inner ear. These were most frequently located in the semi-circular canals, less frequently in the vestibule, and in many cases these were important causes for the resulting deafness. In some cases the auditory nerve showed signs of atrophy and degeneration; furthermore, it had also shown other abnormalities, while in a certain number of cases it showed absolutely nothing abnormal. Lastly, in some cases the brain showed a slight variation from the normal." It is evident from the above published

results in regard to the changes found in the sections made from deaf-mutes that the pathological changes in the organ of hearing were more frequently of inflammatory origin than they were the products of defective development, for in the so-called congenital deafness, anomalies of development have been on the whole but seldom observed. From this, then, what may we conclude? Either that that this inflammatory process has taken place during intra-uterine life, in which case it is evidently a question of congenital deafness; or it has taken place just after birth, in which case it is a question of acquired deafness. The question now is whether such processes with an inflammatory character as are able to be considered as causes of deafness, could be developed during fetal life. Authors who have written upon deaf-mutism unreservedly consent to this view, just as we have seen above was the case with Mygind, and especially do they speak of the probable existence of a fetal meningitis. If, on the other hand, we consult the authors who are especially concerned with fetal diseases or nervous diseases, then we will see that they look at it in a different light. Thus Kleinwachter, in Eulenburg's Encyclopædia, under the caption of "Diseases of the Fœtus" mentions the acute exanthemata, especially variola, as being proportionately the most frequent disease observed in the fetus; by far less space was given to fetal scarlitina, measles and erysipelas. The infection always passes into the fetus from the diseased mother. We know as yet very much less concerning the diseases of the fetus from other infectious diseases, viz.: processes puerperalis, typhus abdominalis et exanthematicus, typhus recurrens, etc. The most frequent fetal disease is syphilis. To the idiopathic fetal diseases which could be associated with congenital deafness belong Phlebitis and Hydrocephalus. Kleinwachter makes no mention of meningitis, neither the simple nor the cerebro-spinal form.

Runge (18) also, in his work, merely mentions the possibility and the fact that transmission of the infection from mother to child has been observed in variola, scarlatina, measles, malaria and puerperal fever. In typhus it is not so certain, nor in cholera. Runge explicitly declares that the possibility of transmission of the poison from the mother to the child is proven in but few diseases, and furthermore that in these diseases it is the rarest occurrence. There is no mention made of meningitis. In the

works also which treat of diseases of the brain and its coverings I have looked in vain for even a reference by which it could be ascertained that a meningitis simplex or cerebro-spinalis had ever been observed in the fetus. On this point I have consulted the article by Ziemssen on "Meningitis Cerebro-spinalis Epidemica" in his manual of special pathology and therapeutics; the article by Huguenin on "Acute Diseases of the Brain and Its Coverings" in the same book; then Erhardt's "Manual of Diseases of Children;" J. Ross' "Treatise on the Diseases of the Nervous System," and also the larger manuals of Charcot, Bonehard and Brissand, but in all I find a unanimity in the fact that these diseases occur very frequently in early youth, even in the first years of life, but nowhere is there mention of the fact that they have been observed while in utero.

The observations of Foa and Bordoni-Uffreduzzi (19) do not differ from those given by me although they have been able to prove the transmission of the diplococcus Fraenkel-Weichselbaum from the mother to the child, the real cause of the meningitis cerebro-spinalis epidem. For the microbe was found in the uterine veins, in the fetal placenta, in the liver and in the blood of the fetus, but not in the meninges, of which, however, no mention appears, and for this reason it is assumed that these tissues were normal.

Changes in the central nervous system have indeed been recognized which, according to our present knowledge, cannot be interpreted otherwise than by the assumption that during intra-uterine life inflammatory processes have taken place which, however, have left behind them these changes, *e. g.*, hydrocephalus with overgrowth of connective tissue in the plexus choroidei. But if congenital deafness—we speak naturally of simple deafness without idiocy—could come from such inflammatory processes, then we would be compelled either to find in sections made from dead bodies of deaf-mutes similar changes in the meninges near by the changes in the labyrinth, or we would find them without these. Indeed, a meningitis can be so transitory as scarcely to leave any changes on the brain coverings, but now and then a change may be seen here and there which might be referred to a transitory meningitis, and furthermore, such changes are also met with among cases of acquired deafness which was the result of

a meningitis, just as in the cases of Schultze (20) and Habermann (21), In Meyer's case (22), in which the author considered the deafness as being congenital, the ependyma of the whole ventricle was thickened. But the author still owes us the proof whether it was a case of congenital or acquired deafness. On this account also Mygind has rightly placed it among those cases where it was not known whether deafness was congenital or acquired after birth. We can, perhaps with great probability, exclude fetal meningitis as an etiologic cause of deaf-mutism. It is held, as I believe rightly, that if the fetus was able to become diseased with meningitis simplex or cerebro-spinalis we certainly would be obliged to observe some dead offspring which had died of meningitis within the mother's womb, since this disease would certainly be obliged to produce more cases of death than cases of recovery with consecutive deafness and deaf-mutism. These acute exanthemata and many other infectious diseases, acute as well as chronic, which play an important part in the etiology of deaf-mutes could well occur during intra-uterine life. But on the one hand these cases are very infrequent, and on the other such a case of congenital deafness has as yet nowhere been found in the literature, *e. g.*, a case of deafness, the result of scarlatina, which has recovered during intra-uterine life. If, indeed, deafness following scarlet fever and other infectious diseases, which are far more frequent in childhood, and the deaf-mutism resulting therefrom is much less frequent than that following meningitis, then this will far more seldom take place when intra-uterine, where such diseases are as yet of the greatest rarity.

But in reference to variola, which has been observed with comparative frequency during fetal life, it is just in this disease that the deafness and the resulting deaf-mutism has been recorded in but few cases, and for this reason it can be of very little importance in congenital deafness. Genuine diseases of the middle ear during fetal life, if they occur at all, are so seldom that they cannot be recognized in importance as an etiologic factor in congenital deafness.

To what extent syphilis exerts an influence in the development of congenital deafness, cannot be said with any degree of certainty. Indeed, there is no doubt but that syphilis, just as all diseases which enfeeble the constitu-

tion of the parents, also exercises an influence upon the offspring in such a manner that the same is not only injuriously affected by this impression partly during fetal life, but it is also made susceptible to external injurious influences, partly after birth. But the statistics in reference to this point contains absolutely none or very few facts from which we might be able to conclude that syphilis is also of importance when considering deaf-mutes who have pretendedly been born deaf.

On the other hand, a condition deserves to be noted to which attention has been directed, especially by Gelle (24), in consequence of which the deafness can apparently be congenital, although it first appeared after birth. It is this: that in fetal life the middle ear is filled with a gelatinous mass which envelopes completely the chain of ossicles and both windows, and which is separated from the drum by a layer of epithelial cells. After birth this material disappears and the mucous membrane suddenly swells out and spreads over the ossicles and the walls of the middle ear, and in its place comes the atmospheric air. As a rule this transformation and aeration of the tympanum is completed in a few hours. But the disappearance of the embryonal tissue does not always take place so easily. Under the influence of pathological conditions, to which belong syphilis, tuberculosis and other predispositions, and congenital cachexia, this delicate transparent embryonal tissue, from which the mucous membrane of the middle ear is formed will become opaque, granulating, bloody serum-like, and even hemorrhagic (*e. g.*, after a severe labor) and purulent; furthermore, the normal contraction of the same will be impossible, for the tympanum is filled with pus instead of air. On account of suppuration the ossicle will be exposed and distorted. The drum membrane withstands these changes so that no perforation occurs, but the pus flows down through the eustachian tube. By degrees this developed sclerosis renders immobile the whole hearing apparatus and completely closes up the labyrinth, in consequence of which the nerve becomes atrophied. The physiological change in the middle ear will immediately make place after birth for a pathological destructive process, and this process opens up more extensively a cause for the deaf-mutism.

I will venture the opinion that pathological changes of the organ of hearing could arise in fetal life which are not

the result of an arrested development, not ignoring the rights of others, since so numerous and so eminent authors share the same opinion, and find diseased processes from which deafness and deaf-mutism could result, do really exist during intra-uterine life. I desired only to call attention to the serious objections which could be properly made against this opinion, and which as I believe then are warranted, must necessarily produce the conclusion that the congenital deafness, on the whole, is much less frequent than has hitherto been accepted, and that the great majority of deaf-mutes have become deaf after their birth.

In conclusion, I may be allowed to express my thanks to the honored director of the Prague Deaf and Dumb Institute, P. Kmočh, as well as to the consulting physician, Prof. Dr. Neureutter, for the willingness with which they have allowed me to examine the inmates and scholars, as well as to the whole body of teachers, who have on all sides aided me in my work. For many of the important literary references I am indebted to the esteemed gentlemen, Profs. Hlava and Thomayer.

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REPORT OF A CASE OF ACUTE UVULITIS.

BY HAL FOSTER, A. B., M. D.

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LARYNGOLOGIST TO ST. MARGARET'S HOSPITAL.

On May 3, '97, M. D., a farmer 54 years old, from Winchester, Kansas, presented himself at St. Margaret's hospital. My attention was called to him by Dr. Tenny, the house physician. The patient's health had always been good. Several days prior to coming to the hospital he took a severe cold, for which he drank some very hot coffee. He noticed at the time that his throat was painful. Several hours later the pain grew much more severe in the region of the palate. Early the next morning a physician prescribed a gargle, which failed to afford relief. The pain grew rapidly worse and the voice was lost, which of course frightened him badly. He immediately came to the hospital. On examination I found the uvula to be enormously swollen and elongated, which caused a constant cough. There were some symptoms of suffocation, as the tonsils and arches were concealed by the greatly distended uvula. Although he was unable to speak, the aphonia was evidently hysterical; there was a slight pain which extended to the right jaw.

The patient was very much excited; the day before his lawyer had made his will for him, as he was now convinced that death was near. After I had examined him very carefully, he was informed that he was in no immediate danger of dying, that a slight operation would cure him; this statement helped him greatly. A 20 percent. solution of eucain was applied directly to the uvula, and after waiting fifteen or twenty minutes, in order that the eucain might have ample time to act, a small portion of the organ was removed by the galvanocautery snare. There was no pain, and only a few drops of blood were lost during the operation. The aphonia soon left him and he was able to talk as well as usual. The cold was undoubtedly the cause of the trouble in his case. Great care was exercised not to remove too much, as there is always a great deal of shrinkage in these operations, even after a small portion has been removed. This patient was under my care for ten days, after which time he left the hospital entirely well.

In doing a uvulotomy, I always use the cautery snare; by doing so there is no pain and, as a rule, no hemorrhage follows it. It is well to use a soothing gargle or spray; the local use of ice removes all inflammation. In this case the trouble with the uvula had so badly frightened the patient and made such a profound impression on his mind that a complete aphonia had resulted.

A CASE OF LARYNGECTOMY, WITH SPECIMEN.*

By C. W. RICHARDSON, M. D.

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Operative interference for malignant growths of the larynx is sufficiently infrequent to justify one in reporting all cases. Especially is this so when we consider that the status of the operation is not, at the present day, fully settled; that is, whether operative interference is always a justifiable procedure. In this, as in a great many other operations for malignant growths, operative measures are deferred from time to time until, when entered upon, it becomes almost a hopeless task.

In April, 1896, Dr. Butler called upon me and requested me to remove a growth from the larynx of a patient under his care. He brought to my office a German, male, of average height, and about 54 years of age. His voice was quite harsh, and possessed that hoarseness which is characteristic of laryngeal ulceration. He had no pain, his family history was good, and he denied the possibility of syphilitic infection. On examination of the larynx, I found the mucous membrane was considerably injected throughout. The left vocal cord was ulcerated in the anterior third, and was quite congested. The right cord was nearly normal. Just above the left false cord there was seen growing from the left lateral wall of the larynx, a large pediculated growth of an intensely red color. This growth was about half a centimeter in diameter. I immediately recognized the man's condition as serious, but could come to no definite conclusion as to the character of the growth. I removed the growth and gave it to Dr. Butler for study. I saw the patient once or twice thereafter; and I heard from Dr. Butler that the patient's condition was steadily going from bad to worse. In September Dr. Butler consulted me as to the advisability of removing the patient's larynx. We decided to remove the larynx, in which the patient acquiesced; although he employed dilatory tactics, delaying the operation from time to time until increasing difficulty in respiration finally drove him to seek relief in operative interference. Just previous to the time set for operation, the following outlines the physical status of the patient: His general condition was bad, as evidenced by the weakness, the growing emaciation, and the general appearance of the cancerous cachexia. The breathing was quite labored, and the respiration, especially during the night time, was attended by par-

*Read before the American Laryngological, Rhinological and Otological Society.

oxysms of respiratory difficulty, seriously interfering with the patient's obtaining sufficient sleep. The appetite was very poor, and nourishment was taken with some difficulty, and only in insufficient quantities. The pulse and heart action were fairly good. There was no pain in the laryngeal region, nor any of a reflected character. There never had been any bleeding from the larynx. The larynx was firm, dense, and very much enlarged. There was no enlargement of the lymphatic glands, or subcutaneous infiltration. The laryngoscopic picture showed no evidence of disease at the site of the original operation. In the vocal region were all the evidences of disease. Both cords had been destroyed, and in their place were a couple of lines of irregular, nodular growth projecting, and nearly meeting in the median line. These masses of new growth were of a grayish white appearance, and there was a point of ulceration at the site of the processus vocalis, and in the anterior third of the right vocal cord. It will be seen later on how imperfect the picture was of the true condition of the growth.

Preliminary Operation.

On December 12, 1896, at 1:30 p. m., I did a low tracheotomy, entering the windpipe between the third and sixth rings of the trachea. The operation was necessarily done low down in the neck and therefore made quite a deep wound. This was completed in a very few moments. On the 14th of December, early in the morning, the nurse withdrew the tube for the purpose of cleaning it, and was unable to replace it. The resident physician, in his efforts to reinsert the tube, failed to pass it into the windpipe, introducing it into the wound by the side of the trachea. Shortly after noon, when I reached the hospital, my attention was attracted by the pulsations of the tracheal tube. I found that no air was entering the tube, so I immediately withdrew it from the wound and reintroduced it into the trachea. The temperature ran up that evening and the next day to 102°, but gradually dropped to normal, which was gained on the nineteenth, the day of the operation.

Operation.

The ordinary preparations having been made, the tracheal tube was removed, and a Gerster tampon canula was introduced. The Gerster tampon canula was fixed, and the patient anesthetized. The primary incision was carried from the thyroid notch to within half an inch of the tracheal wound in the median line. These flaps were dissected away on the right and left until the larynx was almost free, when a transverse incision three inches in length was made just below, and parallel to the hyoid bone. The center of this incision was the upper end of the vertical one, and intersecting with it. These connecting flaps were then dissected back so as to expose the superior cornu of the thyroid cartilage. While working in the depth of the wound on the right side a large vein was torn across, causing a troublesome hemorrhage for some moments until ligated. This was the only hemorrhage of any moment during the operation. The right and left cornu were then separated from their attachments. The thyroid membrane was divided, and the larynx lifted up and separated from the anterior wall of the œsophagus. The trachea

was cut across at the second ring, and the larynx removed. The end of the trachea was lifted out and attached to the sides of the wound. The upper end of the œsophagus was sutured transversely to the upper edge of the wound, so as to close the pharyngeal cavity. The wound was brought together to a considerable extent and then packed with gauze. The Gerster-tampon canula was removed, and a tracheal tube was introduced. The upper end of the trachea was tamponed with gauze, and the operation was completed by the bandaging of the surface. I neglected to mention that the epiglottis was left *in situ*. A soft rubber tube, which had been passed from the mouth into the œsophagus, was removed just after the operation was completed.

Immediately after the operation, and while the cleaning up was being carried out, the patient ceased to breathe, and became deeply cyanosed. I was called to him at once, but not before the feeding tube had been removed and artificial respiration had been resorted to by the assistants. In a few moments the respiration began again, and the cyanosis cleared up. In about ten minutes more the breathing again began to get slow, and the patient to become cyanotic. I raised the head a little and the breathing became better, and the cyanosis entirely disappeared. During the first day the patient seemed quite comfortable, smiled at the attendants, and was very grateful for everything that was done for his comfort. Temperature 99°; pulse full and strong; nourishment given per rectum. During the night it became necessary to remove the canula on account of blood clots collecting below the tube, which could not be coughed through it. On December 20, the patient was comfortable; temperature 100°; pulse good. There was considerable sero-purulent discharge about the tracheal tube, which necessitated frequent changes in the dressings. On December 21, the patient passed a good night; temperature 98.4°; pulse rapid and weak. There was a little moisture at the upper left hand corner of the dressing, which caused me to remove some of the dressings and insert fresh gauze. About 5 o'clock in the evening the patient's condition became rapidly worse, and he died about 10 p. m. from acute edema of the lungs.

The question of operative interference in these advanced forms of malignant growths is a serious one, and one which the surgeon has great difficulty in deciding, especially when the patient himself, as in my case, is anxious for relief through operative interference. After this patient had entered the hospital I noticed his serious condition, and I practically refused to do any operation other than a palliative tracheotomy, but the patient, by his persistence, fortitude and courage, won me over to do the full operation.

In general, I think it unwise to interfere so late in a case. The extent of the growth was far greater than one could gain any idea of from a simple laryngeal examination. Section of the larynx will demonstrate to you that the

growth filled out the whole interior of the larynx from the vocal region to, and involving the first ring of the trachea. It is interesting to observe how completely this larynx was filled up by this growth, and it is almost impossible to conceive how this patient gained sufficient air for respiratory purposes through this extremely narrow lumen of the larynx.

The dressing and after-treatment of the wound is a very important part of the operation, and I hesitated to follow the general course of treatment adopted for these cases, for I could find no good reason for packing the wound with gauze and leaving it open. However, I followed this line of treatment, and I greatly regret having done so. It seems to me that it would be better surgery to have united the flaps throughout and closed the wound. It seems to me that great suffering would have been spared the patient, and much time gained in the healing of the wound by this method, without entailing the danger to the patient of infection. I shall follow out this line of treatment in any subsequent case of this nature which may come under my observation.

1102 L St.

A NEW CHROMIC ACID APPLICATOR.

BY E. E. CLARK, M. D.

DANVILLE, ILL.

EYE, EAR, NOSE AND THROAT SURGEON TO ST. ELIZABETH'S AND
VERMILION COUNTY HOSPITAL,

To those members of the profession who make use of chromic acid, I feel sure this new applicator will commend itself.

I have long felt the need of some improvement upon the old forms of applicators and in this find what I consider a perfect instrument.

In the old forms of applicator, as all know, the crystals of acid must be fused, say, on the left side of the blade and applied to right nasal passage, then the blade must be washed and cleaned, more acid fused on right side of blade and applied to left side of nose. This is exceedingly monotonous, when there is always enough acid on the blade



for both sides of nose if the instrument could be manipulated.

In the new instrument described fuse the acid on left side of blade, apply to right side of nose, then simply loosen the nut which holds the blade in the handle, by a turn with the forefinger and thumb, which are naturally near the nut, and with thumb and forefinger of left hand reverse the blade, tighten the nut, and make your application to the other side of nose, all being done with neatness and dispatch, which is quite an item with nervous patients.

The instrument will be manufactured by Truax, Greene & Co., to whom I am indebted for drawings.

A NEW METHOD FOR THE RELIEF OF NASAL STENOSIS.

BY CHAS. H. BAKER, M. D., M. PH.

BAY CITY, MICH.

The relief of stenosis of the inferior meatus has been accomplished in various ways, which have not all proved satisfactory. Chemical caustics, submucous injections and the galvano-cautery destroy much of the mucous membrane, as does also excision with snare, scissors, etc.

Operations on the bone have been objectionable for the same reason, and the scar resulting from excision, cautery or caustic, is a constant source of annoyance to many patients.

There are many patients whose meati are narrowed, from early childhood, as the result of post nasal stenosis in whom neither the bone nor overlying membrane is hypertrophied; others with comparatively healthy membranes, but the turbinate bone hooks over and its edge is prolonged toward the floor of the nose; still others with deviations or spurs of the septum who, after correction of these conditions, complain of insufficient air space, and, lastly, many cases of moderate hypertrophy to which the following operation is applicable:

The nose is first cocainized well and a hollow trephine, driven at a high rate of speed, is caused to puncture the mucous membrane at the anterior end of the inferior turbinate bone. It is then pressed backward, parallel to the septum, with its surface just hidden under the mucous membrane, cutting a core from the turbinate bone, on its convex surface, from front to back; the drill at no time emerging from its submucous position. If the groove thus formed in the bone is not wide enough, after freeing the trephine from the bone which usually comes away in its interior, another core may be taken below or above the first, and in this manner enough bone removed to give free passage through the nose when the mucous membrane is pushed into the bottom of the groove. The nostril is then packed with gauze in narrow strips for a few hours, making sure that it pushes the membrane to the bottom of the

groove. The operation being practically submucous, the hemorrhage is trifling and does not recur on removal of the packing, which I usually leave in place six to twelve hours. The following cases will serve to illustrate its application:

CASE I.—Mr. E., had deviation of the septum into the left nostril from a fracture in boyhood. This was corrected by crushing the septum crowding over and retaining in position until union occurred, resulting in a straight septum. The left inferior meatus, from disuse, had failed to develop to a normal size, and the patient complained of not getting sufficient air through it, although much better than before the septum operation. A groove was taken from the convex surface of the turbinate bone by submucous trephining, and in a week the membrane covering was firmly adherent to the bottom of the groove where it has since remained, with complete relief of the stenosis and a sound membrane which performs its function normally.

CASE II.—Bertch, B., 7 years of age, a hay fever sufferer, a victim of adenoids and enlarged tonsils. Removal of these benefitted him, but the meati did not develop sufficiently. The inferior turbinate bones of both sides were hooked, and the overlying membrane when in its best state, with no swelling or hypertrophy, was almost in contact with the septum. The most common changes of temperature caused pressure and occlusion, and frequent attacks of asthma. The inferior edge of the turbinate bone and a groove on its convexity were removed by submucous trephining, and on account of the dread of operation and delicacy of the patient, this was performed under general anesthesia. Healing was prompt and uneventful, and the asthmatic attacks and hay fever were relieved.

CASE III.—Mary E., a neurotic subject, who had nasal stenosis from hypertrophy of the membrane overlying the turbinates and resulting tinnitus aurium with impairment of the hearing. This was a case in which excision or cautery of the hypertrophied tissue would be indicated, but trephining was done instead. Healing as usual was prompt, and resulted in complete relief of the stenosis and slight improvement of the tinnitus, with marked gain in hearing power.

These are only sample cases, but illustrate the types before enumerated and show the benefits to be derived which are, first, preservation of a normal or intact mucous surface upon which crusts do not form; second, absence of sepsis, which is liable to follow the larger and slow healing wound of the snare or cautery; third, prompt healing without nasal discharge; fourth, applicability to a class of cases, in which treatment of the membranes would not serve to reduce the stenosis, while the nose is left physiologically active; lastly, permanence. All of the above cases and many others, are from six months to three years old, and in none has the slightest return of stenosis occurred.

ANGIO-NEUROTIC EDEMA AND CERTAIN VASO-
MOTOR AND TROPHIC DISTURBANCES OF
THE MUCOUS MEMBRANE OF THE
RESPIRATORY TRACT.

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The features of clinical similarity between certain affections of the skin and mucous membrane must have been apparent to all and it is to be regretted that they are so rarely studied together. This paper, presented mainly from the standpoint of laryngology, will exhibit many defects under criticism from neurologist and dermatologist. As an introduction to the subject a well studied skin affection will be briefly described.

Angio-neurotic edema: It may be defined as: "An affection characterized by the occurrence of local edematous swellings, more or less limited in extent, and of transient duration." The characteristics of the disease may be briefly enumerated as follows: The edema appears suddenly and is usually circumscribed. The face, backs of hands, legs, or throat may be the seat of swelling. Periodicity is often a characteristic. Heredity may be noted. Itching, heat or redness may or may not be present. It is serious only when the throat is invaded. Gastro-intestinal disorder often accompanies the attack.

The similarity of this affection to *urticaria* is apparent. There is this essential difference, however: In the one there is a definitely localized persistent vaso-motor instability, and in the other the area involved is shifting, the attacks intermittent, and there seems to be a vaso-motor irritability responding to certain irritants probably from the gastro-intestinal tract.

In order that comparisons may be made between these skin manifestations of vaso-motor disturbances and analogous mucous membrane affections the more rare disease will be further described by the narration of a case.

A young man of twenty-nine years, of good parentage and excellent general health, has been affected with a daily edematous swelling over the nose for more than twelve years. Prior to that

time he had attacks of "rush of blood to the head" which subsided as the skin trouble came on. Occasionally the ears have been similarly affected. Careful examination fails to disclose any determining causes. In fact the site of the diurnal blossom has literally seared him into decidedly temperate habits. The swelling appears early in the forenoon, being brought on by hot drinks of any kind and work in a stooping posture. There is redness, but little irritation. The edema often involves the tissues within the vestibule of the nares, but further than this there is no intra-nasal abnormality. The swelling subsides rapidly after a few hours and he is never troubled at night. He admits indiscretions and sexual excesses during adolescence and for sometime thereafter.

It is simply an instance of vaso-motor instability due to disturbed development at puberty, and the cerebral congestions were probably the primary symptoms.

Keeping these two types of angio-neuroses of the skin in mind a detailed description of analogous angio-neuroses of mucous membranes will be attempted. The term hydrorrhea and edema being more expressive will be used instead of vaso-motor rhinitis or angio-neurotic edema. There are several more or less distinct types of vaso-motor disturbances of mucous membranes which will be considered.

Reflex type. In its simplest form this is very easily comprehended, but the indirect and remote channels of reflexes are so complex and labyrinthine in character that an attempt to define would only add to the existing confusion. Fortunately many of our vague and cloudy ideas on reflexes are clearing up by the influence of advanced studies in bio-chemistry. A simple case of reflex nasal hydrorrhea will be narrated.

An old gentleman became suddenly afflicted with sneezing, and a copious watery discharge from the nose. The flow of sero-mucus was excessive and almost constant. He had never had similar trouble, and ordinary treatment for several weeks had failed to give relief. On examination of the ears the source of reflex irritation was found. Inspissated cerumen was pressing on the tympanic membrane and its removal gave immediate and permanent relief.

Vaso-motor rhinitis will likewise be considered briefly. The exciting cause comes from without the system, and mucous membrane irritability and vaso-motor instability are the predisposing conditions. There is a condition following in the wake of hay fever in which structural changes in the membrane and vaso-motor habit seem prominent. This is characterized by persistence of the edema and hydrorrhea and stenosis into the winter months. Vigorous tonic treatment, especially the judi-

cious use of cold water, will break up the habit. In some cases the persistent edema of the tissues has weakened the connective tissue stroma, and advanced trophic changes occur, resulting in pendulous turbinates or polypi. These conditions are mentioned to impress the gradation of vaso-motor into or structural trophic abnormalities. It is often difficult to decide clinically where the latter begins.

Neurasthenia is the constitutional condition which expresses itself in a great variety of vaso-motor disturbances. It will be considered under the *acute* or *periodical* type and the *persistent* or *chronic* type. To emphasize the importance of careful study of these cases one will be narrated:

A young lady, a gifted legal stenographer, was carrying on literary studies in addition to her daily routine work. Gradually she became afflicted with attacks of nasal hyrorrhoea and edema, irregular in periodicity and increasing in severity. She was advised to drop all extra work but did not heed. The daily attack was very sudden in onset, often beginning before rising in the morning, but sometimes late in the afternoon or evening, and, lasting an hour or so, would subside quickly. During this period sero-mucus would flow from the nose so freely that she would substitute a towel for the handkerchief. Not long after the consultation referred to there came a sudden change. The nasal symptoms gave way to central nervous disorder. Intense congestive headaches with impaired mentality and great prostration were the chief symptoms. After six months enforced rest, much of the time in bed, she recovered completely, and is now, having changed her occupation and taken life easier, is in excellent health.

This is but one of very many similar cases seen among that great class of talented, ambitious young women, who respond too keenly to the stimulating influences of commercial life. Symptoms suggesting a transference of the area of vaso-motor disturbance to the central nervous system are not so apparent in all cases but it seems to be of not infrequent occurrence.

Persistent neurasthenia. The mucous membrane manifestations of this condition are very often subordinate in importance to the general systemic and functional depression, but occasionally cases are observed in which edema of the upper, and sometimes the lower respiratory tract with consequent disturbed respiration, and exhausting discharges and broken rest are the chief symptoms. The acute or periodical type may merge into the chronic, but often the chronic form is a vaso-motor expression of an

hereditary weakness or phase of degeneracy. The usual edema and hydrorrhea are often as severe as in a typical attack of hay fever, thus constituting a positive factor in the nervous exhaustion. The membrane is usually very pale and the tissues have a sodden appearance, thus aiding in differentiating this form from that of toxemia in which the membrane may have the appearance of irritation with hyperemia, etc.

A case of this type will illustrate some important points:

A married woman of forty-four, the mother of two children, gave the following history: Her mother, a hypochondriac at the climacteric, suicided under the mental depression following religious excitement. A brother died under similar circumstances. One of the patient's daughters is a mute from typhoid fever (?) in infancy. After her last child birth, twenty years ago, she was sick for a year or more with various manifestations of depression of nerve tone, due in part to lacerations of cervix and perineum which were remedied by operation. Uterine polypi were afterward removed, and then followed vaso-motor storms. Asthma of a peculiar type has persisted, with remissions, to the present time. Nervous excitement precipitates a severe attack at any time. Pressure over the fourth cervical vertebra, which is decidedly tender, will cause immediate dyspnea. The mere insertion of a nasal or aural speculum may cause sudden hydrorrhea with swelling of the turbinates. At times, without apparent cause the parotid and submaxillary glands will swell, lifting the tongue from the floor of the mouth until free flow is established. The joints sometimes puff up without inflammatory symptoms. (These various expressions of vaso-motor relaxation, and especially the nasal edema, suggests that the asthma is excited by bronchial edema, the spasmodic element being secondary. The repeated attacks of nasal hydrorrhea caused trophic changes, and polypi formed. Removal of these, and subsequent reduction of redundant edematous turbinates by the use of the cold snare gave temporary relief from the asthma and insomnia, but subsequent attacks have been even more severe than formerly. She is decidedly worse during the hay fever season, but a cold, frosty atmosphere will cause asthma. Her disposition is most cheerful, habits excellent and nutrition unusually good. Considering the heredity one cannot but be solicitous lest the central nervous system become the storm area and lamentable results follow. In two of the cases mentioned this feature has been observed and it is worthy of consideration in the general management of these cases.

As an evidence of the extreme discomfort and suffering of an attack of nasal hydrorrhea with more or less persistent edema, this lady states that she can endure the asthma with more fortitude than the intra-nasal congestion and stenosis, doubtless because the intra-cranial venous and lymphatic circulation are in a condition similar to that in the nares.

Surgical treatment of the obstructing turbinates should be limited to the removal, not by cauterization as a rule, of the edematous, pendulous tissue. A very decidedly beneficial effect may follow judicious operative procedure. On the contrary, in this as in operations on hay fever cases during the season of attack, the results are often injurious and bring discredit on the art. Cases should be most carefully selected and conservative nasal surgery should only supplement the classical general management adapted to the individual.

A condition which may be called *hydrorrhea gestationis* is not uncommon. It is in part from a condition bordering on nerve exhaustion and in part auto-toxic. A mild expression of similar nature is the acute hyperemia of the larynx seen during the early months of pregnancy. Persistent hydrorrhea and edematous obstruction of the nares may add to the discomfort of the last months of pregnancy. Occasionally operative procedure is justifiable, depending upon the previous condition of the tissues and the urgency of symptoms. General or special nervous depression following parturition is not favorable to restoration of the tissue to the normal condition and here again careful adjustment of local treatment with general tonic and restorative measures may be successful.

Auto-toxic conditions can effect the mucous membrane of the upper and lower respiratory tract in two ways. Through abnormal conditions of the central or sympathetic nervous system vaso-motor and trophic disturbances occur, and secondly, vicarious elimination of toxic or excretory products may cause pathologic changes in the tract of mucous membrane upon which this unnatural function is imposed.

Auto-toxemia may be divided into two general groups. Intestinal and metabolic auto-toxemia are distinctions conveying suggestions for treatment. The chemical study of the end products of toxemia, *i. e.*, the uric acid and xanthine groups, as found in the urine, is approaching scientific accuracy, but we know comparatively little of the changes in mucous membrane secretions in abnormal blood states. Certain it is that the peculiar vaso-motor disturbances under consideration are associated with well studied forms of auto-toxemia the recognition of which is essential to rational treatment.

As a general rule, subject to many exceptions, it may be

observed that the membrane irritated by the presence of some excretory product in its secretion is hyperemic. The form of edema from simple depressed nerve function is characterized by paleness and absence of any true inflammatory symptoms.

Cases exhibiting various phases of auto-toxemia will be narrated.

A married woman of thirty gave the following history which exhibits a decided tendency toward kidney disease, her father having died of Bright's disease and brothers and sisters having shown the same constitutional characteristics. The patient has had puerperal eclampsia once. The urine is quite normal at present but she has at times very decided polyuria. There are many general symptoms of some degree of auto-toxemia, but we are concerned mainly with the periodical attacks of faucial edema as a symptom of cumulative auto-toxemia. The peritonsillar tissue swells in a few hours so as to prevent deglutition. The inflammatory features are slight. This occurred twice monthly for months and has persisted with some remissions for about two years. The patient is confined to bed during the attack and eats nothing for a day or two, and then it subsides quickly, leaving the throat apparently normal. Starvation seems to be the curative measure. A careful study of the urine has not been made, but certain it is that general hygienic treatment and eliminative medication broke up the periodicity of the attacks, and she was free for many months. Turkish baths, massage, and exercise, with lithia water internally constituted the treatment, and the result tends to confirm the diagnosis.

Cases of auto-toxemia of the *lithemic type* of nasal vaso-motor disturbance are very common. The narration of one will cover most of the important points:

A maiden lady who has passed the climacteric gave the following history. She is descended from strong vigorous stock. She departed from their active, hardworking habits of life and entered a convent, afterward taking full sisterhood orders. The confinement has developed lithemia of very pronounced type. Suboxidation suggests the character of the defective tissue metabolism, and she is thoroughly poisoned. Occasional attacks of acute articular rheumatism were noted. The urine was, and is, surcharged with uric acid and compounds. She has many general symptoms but the vaso-motor disturbances mainly concern us. Of late years the rheumatism has given way to attacks of nasal edema and hydrorrhea. Gradually the bronchial tract becomes involved and she develops asthmatic breathing. The nasal stenosis is very persistent and the discharge is often very acrid and irritating. It resists all tonic and local treatment. The constitutional condition suggested eliminative medication and I directed that she take pilocarpin and follow in one-half hour with a hot sling and hot bath. This treatment would give her decided relief for several days to a week. I was not able to follow it up by systematic eliminative medication and hygienic treatment on account of her leaving town, but some months later I

received a request for the prescription which had given her such decided relief.

Both of these cases give evidence of auto-toxemia and certainly not of the intestinal type. Their habits of eating and diet were excellent. The exact nature of the toxemia cannot be determined, and the cases cannot always be differentiated, but a careful study will give indications for treatment. Diuretics sometimes give best results. Occasionally diaphoresis is indicated, and it must be emphasized that the most rigid hygienic management is essential. Suboxidation, due often to sedentariness and lack of good air, contributes to the blood already contaminated by poisons retained from a naturally defective eliminative system more poisons until the central and sympathetic nervous systems are disturbed and all secretory surfaces become channels of elimination. Persistence of those conditions lead to such trophic changes as has been mentioned and a new element is introduced into treatment.

As to auto-toxemia of the intestinal type it seems scarcely necessary to narrate illustrative cases. The common vaso-motor disturbances from this source, such as urticarica, are constantly in mind. Asthma is frequently determined by gastro-intestinal fermentation or putrefaction producing toxines and ptomaines, which being absorbed may cause irritation of nerve centers, or, in some form of intermediary metabolic change toward a terminal excretory product such as uric acid, may be eliminated by the respiratory mucous membrane thereby causing irritation, congestion or vaso-motor relaxation and edema. The general tendency toward polypoid tissue in the nares may be regarded as an expression of depressed vaso-motor function. Nasal obstruction is indeed a factor in causing or prolonging asthma, but it is certainly wrong to attribute too much importance to nasal polypi. In fact the nasal condition may be looked upon as an exaggerated indication of the condition of the bronchial membrane in asthmatic as well as in other diseases. If we consider the dyspnea as in part caused by edema of the mucous membrane then the bronchial spasm may be essentially a conservative process. Spasmodic constriction of the tube that is gradually closing by swelling of mucous membrane intensifies the threatening asphyxiation and arouses the whole respiratory function, including the vaso-motor system, by the primary stimulating effect of carbonic

acid poisoning. Thus it may serve to prevent a dangerous degree of edematous swelling. The copious sero-mucus expectoration following attacks of asthma in most cases certainly tends to corroborate the theory that there is a sudden transudation into the membrane, and that relief is co-incident with the escape of the fluid into the lumen of the bronchioles.

The infectious diseases, and especially la grippe, cause vaso-motor relaxation, and hence we often find nasal hydrorrhea and edema among the train of sequellæ. Undoubtedly many cases of serious accessory sinus disease begin in this way, the trophic changes consequent upon edema paving the way for infection and destructive disease processes.

In closing it may be observed that it will be rare to find the different types of vaso-motor disturbances sharply defined but all will merge more or less into each other. It is desirable to push differential diagnosis as far as possible in order that a basis of rational treatment may be determined.

ABSTRACTS FROM CURRENT OTOLOGICAL, RHINO-
LOGICAL AND LARYNGOLOGICAL
LITERATURE.

I.—EAR.

**A Case of Malignant Deafness in which Great Improvement
in the Hearing Followed the Use of pilocarpin.**

BACON, GORHAM. (*New York Medical Journal*, July 24, 1897.)

A man 33 years of age had had a chronic discharge from both ears since he was 10 years old, as a result of scarlet fever. His hearing was fairly good until last October, when he had typhoid fever. At that time the hearing became so much worse that he could hear nothing. When examined (Feb. 1, 1896,) both drumheads appeared mostly destroyed, and the ossicles bound down by adhesions. He could hear only with the right ear, by means of a trumpet. Bone conduction was very much impaired.

Under ether, the remnant of the drumhead, and the ossicles on both sides were removed, after he had improved decidedly upon receiving hypodermic injections of pilocarpin for two months. The operations were followed by still more improvement.

Nov. 24. The hearing was very good all summer, and he has been able to attend to his work without difficulty. He hears a slightly raised voice a distance of ten feet with the left ear, and fourteen feet with the right ear. Acoumeter, right ear, sixteen inches. Left ear, six inches.

Bone conduction, excellent.

Galton whistle heard well. Koenig rods, 200,000 v. s., and 25,000 v. s., heard fifteen feet with each ear; 30,000 v. s., right ear, seven feet; left ear, twelve feet; 35,000 v. s., heard at two inches with each ear.

The best results with pilocarpin have been obtained in cases of sudden deafness due to syphilis. It is disappointing in chronic catarrhal otitis with loss of bone conduction. It should be given hypodermically. The dose should be a very small one at first, and gradually be increased, in order to watch its effect on the patient, as it is a dangerous weapon in some cases. The patient, each day before the administration of the drug, should be put to bed and kept

there for two hours, or until the physiological effects have passed off. The remedy must be continued for some length of time, this patient not showing any signs of improvement until nearly two months had elapsed.

Morgenthau.

Malignant Tumor of the Brain.

BARR AND NICOLL. (*Glasgow Medical Journal*, September, 1897.)

The patient was a boy 12½ years of age, who had consulted Dr. Barr sixteen months before his death, owing to severe pain in the right ear. A mass resembling a polypus but exquisitely painful to the touch, was twice removed by a wire snare and under chloroform, and at a third operation the antrum, middle ear, and external canal were cleared of the growth as thoroughly as possible. Later, vomiting, drowsiness, subnormal temperature, etc., pointed to temporo-sphenoidal abscess and the skull was trephined under great difficulty in connection with the anesthesia. Absolute apnoea resulted within ten minutes of the beginning of the operation, and besides a tracheotomy artificial respiration was kept up for more than an hour. On removal of the disc of bone, the bulging dura was incised, when the patient began to breathe spontaneously. On examination with the trocar, a hard mass was discovered under the normal brain cortex. A portion of this was removed, but the growth could be felt to involve the base of the skull, and the operation was concluded. The patient lived for about two and a half months after the operation. The apnoea was probably due to intra-cranial pressure leading to edema of the brain and distension of the ventricles. The character of the tumor was not definitely decided upon.

Hardie.

Cases of Cerebral Suppuration Caused by Middle Ear Infection.

BARR, THOMAS, Glasgow. (*Archives of Otology*, XXVI., No. 3.)

At the meeting of the Glasgow Pathological and Clinical Society of February 8, 1897, Dr. Barr showed two temporal bones from different cases, illustrating how septic infection may pass from the tympanic cavity and mastoid antrum through the labyrinthine spaces and auditory and facial nerves to the cerebellar cavity. In the case of one, that of a lad 17 years of age, who for seven years had suffered from a purulent discharge in both middle ears, with perforation of Shrapnell's membrane, and for which all

ordinary remedies had been ineffectually employed. Three months before death, symptoms of intra-cranial mischief showed themselves. A large polypus, which at that time obstructed the left external meatus, was removed, and the cavities of the middle ear, including the antrum, were then also freely opened and cleared out. Temporary improvement followed, but on the occurrence of still more marked symptoms of intra-cranial mischief, Dr. J. H. Nicoll freely exposed the sigmoid sinus and also the dura mater lining the outer part of the floor of the middle fossa, but in neither situation was there found purulent collection or any other sign of disease.

The patient died a week afterward with symptoms of lepto-meningitis. On post mortem examination the bone presented three large operation cavities on the outer aspect, and part of the tympanic wall of the labyrinth was found to be destroyed by caries. There was a large perforation in the upper part of the tympanic membrane, and of the ossicula, only the malleus remained.

Pathologically, the most remarkable feature was the existence of a large cavity, lined by a soft membrane, occupying the fibrous part and continuous with the antrum; this was the result of necrotic destruction of the whole of the labyrinth. The only trace of the labyrinth was a small loose sequestrum consisting of a portion of the cochlea. In the roof of this cavity, corresponding with the position of the cochlea there was a carious opening, penetrating the bony floor of the middle cranial fossa, but covered by healthy dura mater. The cribiform lamina had been eroded away, the auditory nerve much thickened, presenting here an abrupt and rugged ending.

The condition of the facial nerve was also of much interest. In the internal auditory meatus, it was inextricably united with the auditory nerve, evidently sharing in the swelling and the thickening of the latter. The cerebellum at the anterior part of the lateral lobe in the neighborhood of the internal auditory meatus was found to be superficially ulcerated, and pus, having a fetid odor, though not in large quantity, was seen to extend mesially and deeply into the cerebellar tissue. In the meshes of the pia-arachnoid, both on the convexity and the base, there was extensive fibrinous exudation.

Dr. Barr observed that this mode of infection is probably a much more common pathway than is usually considered.

There was no sign of disease in the groove for the sigmoid sinus nor in the roof of the middle ear.

Case III.—A man 45 years of age, who had suffered for five years with a purulent discharge of the right middle ear, with the hearing practically gone in that ear.

In the base of the brain an aperture is seen at the front of the right cerebellar hemisphere just where the latter lies in contact with the internal auditory meatus. This aperture leads into an abscess cavity occupying the greater part of the right hemisphere; this contained very offensive pus. Fibrinous exudation is seen in considerable quantity on the pia-arachnoid over the base of the brain, especially along the vessels in the fissure of Sylvius.

There was neither thrombosis of nor purulent formation around the sigmoid sinus, but a very important feature was the existence of a distinct thrombosis of the cavernous sinus on both sides. *Campbell.*

Concretion in the Ear in Chronic Middle Ear Suppuration.

BARTH, A. (*Monat. f. Ohrenh.*, Feb., 1897.)

B. observed a girl, 6 years old, who had suffered for years with a unilateral otorrhea, a concretion formation. He was not able to find a similar case in literature. The suppuration is fetid. In the depth of the canal was seen a grayish-yellow spherical body as hard as bone, and rough. On introducing a probe behind the body, the mass was felt to be soft on its inner surface. After extraction it was found to be a cotton pledget saturated with offensive pus, on whose external surface was collected a rough mass hard as stone. This appeared under the microscope to be composed partly of glandular structure and partly of crystals, presumably of calcium. The surfaces of the pledget resting against the wall of the external canal and toward the middle ear showed only a trace of the concretions. The chemical analysis, undertaken by Prof. Zinke, of Marburg, gave no reason to suppose that we had to do with a precipitated medicament. It was determined that the body consisted of a small quantity of carbonate and of a relatively greater quantity of sebasate of lime. We had, therefore, here a true otolithic formation, were not the name otolith already pre-empted. We content ourselves, therefore, with the designation: Concretion formation.

Naturally it is of consequence to determine by what method the incrustation of lime was brought about. The

basic substances—carbonic acid, sebacic acid and lime—existed beforehand in the pus; both the latter, perhaps, in somewhat increased quantity as the pus, being hindered in its outward flow by the cotton plug, more easily decomposed, and the existing granulations in the tympanum had contributed to increased solution of the bones. But the same conditions are often found, and yet a concretion formation appears never to have been observed up to the present. The foreign body had perhaps lain for a year in place and on it is found, as in other parts of the body, a collection of hard salts. On the other hand, the youthfulness of the patient and the moderate quantity of granulations speak against the supposition that the foreign body could have lain, permeated as it was with the fetid secretion, excessively long between the external auditory canal and the tympanum. Retention symptoms were never apparent. Barth does not question that the secretions had swarmed with micro-organisms, but is not inclined, as has been done recently by a French author for the rhinolith, to make this preponderance answerable for the lime collections. But it is remarkable that the lime salts had lodged only on the external surface of the cotton plug where the secretion was continually in contact with the atmospheric air and through evaporation thickens and thus could bring about the precipitation of the dissolved solids. This could hardly have been the only cause, otherwise would this formation have been observed more often in the ear. That they are observed so seldom lies also in the fact that foreign bodies do not long remain in the depth of the ear with a simultaneously existing middle ear suppuration, without producing sensible symptoms of irritation. But this much is determined from the above observation, that in the ear, as in other cavities of the body, under similar conditions, stone formations are induced; and though here apparently the conditions are not so favorable as in other places, yet the first signs of collections should perhaps be found more often for the future after their occurrence has once been shown.

Alderton.

The Treatment of Chronic Suppuration of the Middle Ear.

BISHOP, S. S., Chicago. (*The Laryngoscope*, August, 1897.)

The writer combines the wet and dry methods of treatment or alternates them. The method outlined follows: (1) Syringing (using a quart with a continuous flow syringe) with a warm sublimate solution; (2) inflation with a 10 per

cent. solution of camphor-menthol; (3) the discharges that inflation may project into the meatus are removed with cotton; (4) fill the ear with warm dioxide of hydrogen solution, which is left in the ear as long as effervescence continues; (5) dry the ear thoroughly with absorbent cotton on a probe; (6) dust with aristol to which boracic acid is sometimes added for its drying effect. Nosophen is also considered of value. "After a few treatments the dry method is resorted to, if the ear can be effectually cleansed without irrigation." If the perforation in the Mt. is so small to admit of free drainage, it should be enlarged. In many intractable cases the writer advises that "his ear aspirator should be employed to evacuate the middle ear and its accessory chambers of the discharges that have been held back," and asserts that its use has often been followed by a rapid recovery. *Hardie.*

Contribution to Surgery of the Ear.

BONAIN. (*Archiv. Internationales de Laryngologie, d'Otologie and de Rhinologie*, July and August, 1897.)

The author admits that in operating on a mastoid, he is often surprised by unexpected complications. He says nothing new, however, when he states that widespread necrosis or complications from the big blood vessels or even extra or intra-dural abscesses may be found in cases where we least expect them. He states, too, that there are cases where an operation seemed unavoidable but in which the swelling and suppuration disappeared spontaneously. He insists that it is not enough to open the antrum, that we must also open the cells, and explore their walls. He gives six observations of his own. They do not offer anything new. *Holinger.*

Affections of the Ear a Bar to Military Service.

CLAUDE. (*Annales des maladies de l'oreille, du larynx, du nez et du pharynx*, No. 7, July, 1897.)

The requirements for hearing are different in different armies. In all, distinct limits are set below which no man is accepted for military service. These are in Austria and Germany, 4 meters for whisper in both ears, and deafness in one ear below 2 meters. Delstanche favors admitting men with hearing at 1 meter for distinctly pronounced words in a closed room. Men who understand distinctly pronounced words from 1 to 4 meters, he recommends for auxiliary service. In France they use the watch, whisper and loud speech: in Austria, Germany and Holland, whis-

per with closed meatus. The author thinks that whispering is preferable. If the greater part of one or both external ears is missing or deformed, the man is not accepted. Atresia or polypi of the meatus makes service impossible. Suppurations of the middle ear exempt from service in all countries, as well as pronounced diseases of the internal ear. In catarrhal affections of the middle ear it is often difficult to give good rules. The author gives the different ways to discover simulation. To those mentioned in the text book he adds two new ones: One of the examiners tells the suspected malingerer in a low voice, that he is free and may go home. Or the physician watches him, whilst at a distance, others talk about him. If he is simulating, his manner is apt to betray him and show that he heard the remarks. These rules are used in Switzerland, often with success. *Holinger.*

A Case of Mastoiditis with Thrombosis of the Lateral Sinus.

DAY. (*The Laryngoscope*, August, 1897.)

The patient, a girl 8 years old, had a Bezold mastoiditis and the swelling in the neck was so great as to threaten suffocation. The abscess, however, during the examination, ruptured into the pharynx. After opening the mastoid, the jugular was exposed for ligation before examination of the lateral sinus. It was found collapsed. Darkness stopped the operation at this point (which emphasizes the importance of using an electric battery with forehead light in such operations, H.). Four days later the sinus was uncovered, it was tense but pulsations could be felt and as the patient had lost very much blood and was apparently dying nothing further was attempted. Shock was profound and the toxemia continued, the temperature each day, varying between 98° and 106°. Four days after the second operation the swelling in the neck, which had again appeared, was opened and an old part of disintegrated clot of blood and pus removed. For 8 days the temperature ranged from 98.8° to 106.2°. During the next 10 or 12 days the range was 97.4° to 100°, when a septic pneumonia developed. The patient ultimately recovered. The reporter considered the clot, removed from the second abscess in the neck, a thrombosis, probably of the bulb. *Hardie.*

A Peculiar Case of Unintentional Removal of a Polypus of the Membrana Tympani.

FIKES, E. (*Monat. f. Ohrenh.*, February, 1897.)

Mr. N. came, on October 29, 1896, complaining of an

extremely offensive left otorrhea, feeling of fulness, subjective intermittent tinnitus and occasional shooting pains in left ear.

I perceived after cleaning the external auditory canal, a pyriform, dark red growth corresponding in position to the short process and the manubrium; apparently a polypus probably attached to Shrapnell's membrane. The posterior half of the membrana tympani shows distinct chronic diffuse inflammation; the anterior half, partly hidden by the marked convexity of the anterior canal wall, appears calcified. The treatment was limited to that of the chronic myringitis. Upon the fifth day of treatment, to my astonishment, after the customary syringing the calcific flakes that were still to be seen on the previous days disappeared; on the other hand, a sort of whitish curtain was seen over the polypus and partially over the posterior half of the Mt. which appeared to me as a piece of cotton and which was not removed by repeated syringing, and then only after some resistance by the forceps. As conjectured, it was cotton to whose inner surface the polypus, seen on the first day of treatment, was grown fast. After wiping away a small quantity of blood, the site of attachment of the polypus was seen on the upper half of the short process. The resemblance to calcification, that struck me at first, was nothing more than the cotton that had grown adherent to the corresponding portion of the Mt. and only became loosened by the syringing on the fifth day of treatment.

The cotton must have been present before the formation of the polypus and must have become incorporated with it in its growth the same as, after trephining the mastoid process, the iodoform gauze which has remained too long in the wound cavity is known to become incorporated with the newly formed granulation tissue. *Alderton.*

A Case of Lupus of the Left Auricle.

CIARROCHI, DR. (*Arch. ital. di Otol.* 1, 1897. Review by Jankelevitch in *Revue Hebdom.*, July 3, 1897.)

Male, 35 years old, without hereditary taint, robust, who had had the trouble for eighteen years. The left auricle, of a purplish red color, was less in substance, less movable and less flexible than the right. The skin thick; impossible to separate it from the cartilage or to raise it in folds. The internal surface was pierced by dilated glandular openings which presented the appearance of yellowish-brown spots. The lobe rounded, hard and

elastic; the remainder of the auricle of a doughy consistency. To the touch, the skin of the auricle was like the glaze on a layer of grease.

The edge of the auricle was ragged and in places so wasted away by cicatricial atrophy that the underlying cartilage was visible; in other places the superficial epidermic layers of the edge were slightly elevated and formed small phlyctenulæ; again in places strongly adherent scales, and gray-brown crusts, were observed. When the scales and crusts were removed and the phlyctenulæ opened, an ulcerated violet-red surface was exposed with a cloudy serous liquid secretion.

The affection had resisted all treatment generally employed in such cases. More or less satisfactory results were obtained only by thermo-cauterization and cataplasms of rice in water.

Resumé of the characteristics of the lesion: It appeared at the age of twenty and had continued for eighteen years; aggravated during mild seasons, particularly in summer; unilateral; relatively good health of the patient, absence of chilblains (erythematoid lupus of Leloir, chilblain lupus of Hutchison).

NOTE: Each treatment with the thermo-cautery was followed by a polymorphous erythematous eruption on other parts of the body. *Alderton.*

Aural Cysts.

GRUBER, J. (*Allgemeine Wien. Med. Zeit.*, No. 16, 1897.)

Benign cystic new formations of the auditory structures are observed sometimes as sebaceous (atheroma); sometimes as serous. G. reports two cases: one involving the auditory canal; the other the pharyngeal orifice of the Eustachian tube.

The first patient complained of deafness, tinnitus and obstruction. Examination revealed a soft, elastic tumor on the posterior wall of the right canal and in contact with the anterior wall. Cruciform incision evacuated serous fluid; cavity was curetted; redundant skin excised and iodoform dressing applied. Deafness and tinnitus disappeared.

The second patient, who was tuberculous, complained of the same symptoms. The affected ear could not be inflated by Valsalva's or Politzer's method or by catheterization. The patient was too feeble to permit rhinoscopy. Digital exploration revealed a soft, elastic tumor

occupying the entire right lateral wall of the pharynx and extending nearly to the nares. It was clear that this tumor also involved the cartilaginous portion of the Eustachian tube and formed the obstruction. The diagnosis of neoplasm was finally made and the death of the patient permitted an autopsy which revealed a serous cyst originating in the fossa of Rosenmüller and extending inferiorly, and anteriorly covering the cartilage of the tube and involving its anterior wall. *Alderton.*

The Operative Treatment of Suppurative and Non-Suppurative Middle Ear Inflammations.

DENCH, New York. (*Medical News*, July 3, 1897.)

The author again after emphasizing the various steps in operative procedure appends the statistics of his own operations.

Operations for otorrhea.—Ossiculectomy, 61 cases. Cured, 35; improved, 17; under treatment, 1; result unknown, 8; hearing made worse, 1; Stacke-Schwartz operation, 10 cases. Cured, 6; improved, 4.

Operation in otitis media purulenta residua.—For improvement of hearing, 20 cases. Synechiotomy performed in 18. Improved, 17; unimproved, 1. Ossiculectomy performed in 2. Improved, 1; unimproved, 1.

Operations in non-suppurative otitis media.—Removal of malleus, incus and drum-membrane and mobilization of stapes. Cocain operations, 46. Greatly improved, 26; moderately improved, 14; unimproved, 6. Ether operations, 13; greatly improved, 2; much improved, 5; moderately improved, 5; unimproved, 1. Total, 59 operations; improved, 52; unimproved, 7. *Campbell.*

The Rapid Dilatation of Strictures of the Eustachian Tube by Electrolysis.

DUEL, New York. (*The Laryngoscope*, July, 1897.)

The author reports the results in ten cases where copper bougies attached to the negative pole of the battery are passed into the strictured tube while the positive pole, by means of an ordinary contact pad, is connected with the patient's hand. A current of 2 to 5 milleamperes is used.

Case 1. Had influenza 5 years ago, since which time had impaired hearing and tinnitus aurium on right side. The Mt. is much retracted. Acoumeter heard at 3 ft.; whisper, 6 ft.; upper tone limit, 2.0. Galton; lower tone limit 512 V. S. Bone conduction increased. No im-

provement after inflation. Left ear practically normal.

After electrolytic treatment the eustachian tube allows one to freely enter tympanum. Hears whisper at 25 ft. Acoumeter, 24 ft.; no tinnitus aurium, no vertigo.

Case 2. For 10 years tinnitus in both ears and attacks of vertigo. Both Mts. retracted. Constriction of both tubes. Acoumeter heard in right 3 ft.; in left not at all. Whisper, right, 30 ft.; left, 4 ft.

Tone limits; Upper, right, 2.5. Galton; upper, left, 3.3. Galton; lower, right, 128 V. S.; lower, left, 1024 V. S. After treatment hears acoumeter, right, 11 ft.; left, 1 ft. Vertigo and tinnitus disappeared.

Case 3. Had scarlet fever 2 years ago, constant vertigo for the past year, worse for an hour or two after rising in the morning. Impaired hearing and tinnitus on the right side. Right Mt. retracted. Acoumeter, right, 20 ft.; left, 30 ft. Whisper, right, 25 ft.; left, 30 ft.

The vertigo and tinnitus disappeared. Hears whisper. Right ear, 30 ft.; acoumeter, 30 ft.

Case 4. Since contracting a cold 6 weeks ago has had tinnitus and impaired hearing in the right ear. Right Mt. retracted. Acoumeter heard, right, 1 in.; left, 30, ft; bone conduction diminished. Inflation for several weeks without improvement. After using electrolysis whisper is heard in right ear 10 ft.; acoumeter 6 in. Tube admits air freely; tinnitus improving.

Case 5. Impaired hearing for 6 to 8 years, constant loud tinnitus and dizziness. Both Mts. retracted. Under treatment hearing improved fifty per cent. Tinnitus and dizziness diminished.

Case 6. Impaired hearing and loud tinnitus on the left side for 6 years. Left Mt. retracted. Whisper heard, left, 20 ft.; right, 30 ft. Acoumeter, left, 2 ft.; right 30 ft. Tinnitus, though diminished, still persisted; hearing for ordinary conversation considerably improved. An increase on left side with acoumeter 2 ft. and whisper 10 ft.

Case 7. Impaired hearing and loud tinnitus in right ear for 6 weeks. Right Mt. retracted. Right eustachian tube admits practically no air on inflation.

There was marked improvement in hearing and the tinnitus was much diminished.

Case 8. Tinnitus and deafness with occasional attacks of pain for the past 11 months. Both Mts. retracted. Inflation failed to give relief.

Electrolysis caused entire disappearance of tinnitus and hearing became normal with one application.

Case 9. Deafness and tinnitus of several years standing more marked on the left side.

Whisper heard, left, 20 ft., acoumeter, 6 ft. Hearing improved so that on left side acoumeter heard 20 ft.; whisper, 26 ft.

Case 10. Had measles in childhood. Influenza 5 years ago followed by tinnitus in both ears and improved hearing which is gradually growing worse. Both Mts. much retracted.

Acoumeter heard, right, 6 in.; left 6 in.; whisper, right, 15 ft.; left, 15 ft. Repeated inflations caused no improvement. Improvement in hearing so that the acoumeter could be heard at a distance of 14 ft. *Campbell.*

Why Is Suppurative Otitis so Frequent and Mastoiditis so Rare?

FARMS, Madrid. Anatomical explanation. (*Annales des maladies de l'oreille, du nez, et du larynx.* July, 1897.)

The author discovered in fresh cadavers several membranes which served as septa, so that water, poured into the middle ear through the Eustachian tube, did not run into the antrum and mastoid process, as long as it had not more than 4 to 6 c.m. of pressure, but at a pressure of 24 to 26 c.m. the septa ruptured and the water showed in the mastoid process. *Holinger.*

Primary Epithelioma of the Middle Ear After Chronic Suppuration of 12 Years Standing.

HAMON DU FOUGERAY, (*Annales des maladies de l'oreille, du larynx, etc.*, August, 1897.)

There are only few cases on record of cancer of the middle ear. This case was observed in a scrofulous woman of 40 years, who suffered from chronic suppuration. Examination with the ear speculum revealed nothing that would suggest epithelioma rather than old suppuration. There was an irregular perforation with a number of granulations that bled very easily when touched with a probe. Paralysis of the facial nerve was present. The operation had to be a very extensive one, so much so, that the finger could be introduced as far as 10 centimeters into the head. The patient died with the symptoms of paralysis of the glosso-pharyngeal nerve and paralysis of speech. No post-mortem. *Holinger.*

Facial Paralysis of Otic Origin.

GERONZI, DR. G. (*Archiv. ital. di otol.*, etc., V., 1897.) Abstracted by Jankelevitch in *Revue hebdom. de laryngologie*, July 3, 1897.

The patient was a victim of alcoholism attacked by an otitis media purulenta, and with granulations still present in the right tympanum. The inferior facial on the same side was completely paralyzed; a manifest deviation of the tongue to the right; the right half diminished in size and showing the furrows characteristic of atrophy of the organ. Right palatine arch paralyzed, with complete disappearance of the right anterior pillar. Right vocal cord completely paralyzed. The voice had a pronounced nasal timbre.

Electrical examination: The right facial does not respond to either the galvanic or faradic current. In the muscles supplied by the left facial there is a diminution of contractibility to the faradic current; in the tongue a diminution of excitability (faradic), and an inversion of the formula in the right half. Normal sensibility of the left half. Sensibility diminished on the right side for touch, pain, taste and hearing.

There is no doubt as to the otic origin of the facial paralysis in this case. But what is more interesting is the progressive degeneration to which the nerve has been subjected for long years by the action of infectious agencies in the Fallopian canal. This degeneration progressed the more easily just in this place because the irritation, which was as much mechanical as chemical, was produced at a point very close to its medullary origin. Thus we find united all the conditions which have become recognized of late years as necessary for the production of a central degeneration of a motor nerve. Thus the simultaneous paralysis of the X., XI. and XII. pairs, which was also observed in this case, could be simply explained by granting the propagation of the process of degeneration from the facial to the neighboring nerves by means of the bulb.

The alcoholic history of this patient created a kind of predisposition to nervous degeneration, which, after all, is extremely rare in chronic otorrhea. *Alderton.*

Bezold's Mastoiditis With Pyemic Symptoms.

HEGETSCHWEILER, J., Zwrich. (*Archives of Otology*, XXVI., No. 3.)

The author relates the history of a case in a man aged 64, in vigorous health, who began complaining of chills and pain in the left ear and in the head. Three days later

this was followed by a sero-purulent discharge mixed with blood. After the interval of one month he had more chills and considerable pain developed in the left shoulder and left lumbar region; temperature varied from 37.5°, C., to 38.9°, C. In the left ear there was a profuse purulent discharge, which exuded from a small perforation in the upper and posterior quadrant of the Mt. The appearance of the mastoid was unchanged, but the apex was sensitive to touch. There was no swelling or tenderness along the external jugular vein.

The Mt. was incised, enlarging the small perforation, and by antiseptic treatment the discharge gradually ceased. The general condition progressed less favorably; there persisted a typical pyemic fever, the source of which evidently was the metastatic inflammation of the left shoulder and lumbar region in connection with the focus in the mastoid. The pain in the lumbar region became much more intense, and a swelling about the size of the palm of the hand appeared, in which fluctuation could be detected. This abscess was incised and drained.

About ten weeks from the beginning of his illness he complained of heat and pain in the left heel and sole of the foot; an edematous swelling appeared on the left leg, especially around the ankle, and a sensitive cord-like resistance could be felt in the calf.

The otorrhea recurred and a dense infiltration about the size of a nut appeared in the parotid region. This infiltration extended till it reached the thyroid cartilage below and the median line of the neck behind. Contrary to what is usual, this purulent focus extended upward over the outer surface of the mastoid process, so that fluctuation was distinct above the upper attachment of the muscles to the squamous portion of the temporal bone. This abscess was incised and drained and the discharge ceased in eight days, since which time the auditory meatus has remained dry.

Aside from the initial chill and the pronounced pyemic fever curve, the following conditions merit consideration:

1. The metastases.
2. The thrombosis of the left leg, probably due to phlebitis of the vein of the cellular tissue of the pelvis transmitted to the femoral vein.
3. Bezold's mastoiditis.

The author confirms Körner's views that "when in con-

junction with an acute otitis media, and, notwithstanding a free discharge, high fever, with or without a chill, occurs, then is the supposition justified that it is a pyemia from an osteophlebitis. And if, in addition, there are metastases in the joints, bursæ or muscles, the diagnosis is certain."

Campbell.

Syphilis of the Ear.

HENNEBERT AND BROEKAERT, (*Clinique de Bruxelles.*)

Acquired syphilis: Only four cases of primary affection of the ear are known. Much more frequent are condylomata of the external ear. The syphilitic middle ear affections are always secondary to the affections of the nose and throat.

The internal ear may be affected: 1. By chronic labyrinthitis, which is similar to progressive sclerosis, only this latter develops much more slowly. 2. By acute, apopleciform labyrinthitis, which is very similar to Meniere's disease, the symptoms being sudden deafness, nausea, dizziness, and sometimes facial paralysis. It often occurs early in the secondary stage. The prognosis is bad. The treatment consists in hypodermic injections of pilocarpine, besides the regular specific treatment. Congenital syphilis may involve the ear at any stage. It takes the character of dry otitis media. The prognosis is bad. A prolonged specific treatment helps sometimes. *Holinger.*

A Case of Chloroma of Both Temporal Bones.

KOERNER, Rostock. (The literature on the chloroma of the temporal bone and of the ear. *Archives of Otology.*, XXVI., No. 3.)

This is a report of a case in a child aged six, of previous good health, who became hard of hearing and complained of headache of increasing severity. On examination there existed a double exophthalmus, more marked on the left side, both abducent nerves were paralyzed, the left partially, the right completely. The cutaneous veins of the forehead were distended. Both temporal regions were swollen, but of normal resistance on palpation. The pupils, of normal size, responded to light. The ophthalmoscope showed marked bilateral choked disc. Both Mt. were bulging, of pale, greyish-yellow color. The malleoli were not visible. The left mastoid was tender on pressure but had no swelling about it. Paracentesis of both Mt. evacuated considerable odorless pus. The patient complained only of pain in the head: his intelligence was good.

The temperature varied between 37.5° C. and 38.3° C.; the pulse was weak and irregular, 104-126 per minute.

The condition remained the same for a few days, then he complained of severe pain in the left ear and more tenderness over the left mastoid. Paracentesis of the left Mt. was again performed with a fresh discharge of pus. Pain did not diminish, and next day the temperature was 38.2° C. in the morning and 39.2° C. in the evening. Under chloroform the mastoid was opened. The cells appeared normal. On opening the middle cranial fossa the dural veins were found congested. On account of respiration ceasing the lateral sinus was not exposed. In the next five days the temperature was 38.6° C. to 39.5° C., the pulse 140-150. During the next four weeks the temperature fell somewhat, the pulse became slower, the mind was clear and headache occasional; then, without rise in temperature, the headache became more severe, the patient was restless, pulse 144, respiration 66; the next day the back of the neck was rigid and death occurred in a few hours.

Post mortem examination showed no phlebitis in any sinus. Both lateral sinuses, in their course along the temporal bones, were completely occluded by greenish tumors originating in the sinus wall. Similar tumors, starting from the base of the skull, had invaded the temporal bones. The sphenoid was perforated with tumor masses, and in the posterior parts of both orbits and in the temporal muscles tumors as large as hazel nuts were found. Microscopic examination confirmed the diagnosis of chloroma.

Prof. Körner, in reviewing the literature on chloroma, finds that the temporal bone and the ear are involved in half of the cases of this rare tumor. Chloroma occurs always multiple, generally in children or in young adults. Its origin is usually in the dura, in the wall of a sinus, in the pericranium, and in the cavities of the bones of the skull, as well as in the orbits. It occurs very frequently bilaterally symmetrical. The temporal groove is a place of predilection, the chloroma then developing from the periosteum or in the substance of the muscle.

Respiratory Closure of the Exposed Lateral Sinus and Air Embolism.

KOERNER, Rostock. (*Archives of Otolaryngology*, XXVI., No. 3.)

So far as the author knows respiratory movements of the lateral sinus, exposed in its temporal portion, have only been observed by Jansen (*Archiv. f. Ohrenheilkunde*, Vol.

XXXVII., p. 21, case 18), and by Schwartze (*Archiv. f. Ohrenheilkunde*, Vol. X., p. 23, case 2.)

A child, aged four and one-half years, two weeks after measles, developed an acute suppurative otitis in the right ear. One week later high temperature, violent chills and painful erythemata over the extremities. The left ear became affected, the right parotid, the left elbow and the left foot were swollen. The right mastoid was opened and a large abscess cavity was evacuated. The lateral sinus was exposed for a distance of two and one-half centimeters. The sinus wall was smooth, gray and pulsated. The left mastoid was then opened and an abscess cavity found. The sinus appeared normal and was situated quite anterior and superficial, covered by bone only 2 mm. in thickness.

The sinus showed slight pulsation, synchronous with the pulse. The patient coughed, and during the deep respiration the sinus collapsed, then dilated, and with the next inspiration again fell in. When the sinus was flat it appeared grey, but became blue when full.

An inspiratory closure of the sinus, laid bare and exposed to the atmospheric pressure, can only occur when the sinus is patent toward the heart and closed off toward the brain; thus during inspiration the blood is aspirated toward the thorax and cannot be replaced from the brain, or owing to cerebral anemia, the necessary amount of blood is not supplied quickly enough. The sudden beginning of the respiratory movements on a deep inspiration following coughing suggests the possibility that a thrombus, situated proximally, was dislodged by the coughing. Whenever the suction power of the inspiration is so strong that the sinus collapses air would be aspirated if the sinus were open and death might follow through air-embolism.

But one case of death after air embolism of the lateral sinus has been reported, that of Kuhn (*Archives of Otolaryngology*, XXVI., No. 1), but the danger probably is greater than generally estimated.

When a sinus shows respiratory movements it should only be opened after ligation of the jugular vein, and as inspiratory suction may occur suddenly in a previously quiet sinus, this is an additional plea for the ligation of the jugular vein before opening the sinus in all cases where

the presence of a firm occlusion of the blood channel in the direction of the heart is not known to exist.

Campbell.

Bilateral Otitis Media Purulenta Acuta; Thrombosis of Left Lateral Sinus.

LACHARRIERE. (*Revue Hebdom. de Laryngologie*, March 6, 1897.)

Case.—Jennie R., 22 months old, very pale, no appetite, only moderately healthy, contracted in April, 1896, a coryza. April 24th taken seriously ill, depressed, dull, no appetite, fever several times rising to 40°C. in the evening. Cervical glands markedly tumefied. Five days later abundant muco-purulent discharge from the left ear, followed the next day by discharge from the right. The temperature immediately fell and the child felt well. Under treatment the discharge diminished. May 4th, suddenly a violent chill, lasting a half hour, intense fever in the evening, pronounced prostration. May 5th, edema of the left upper eyelid. Eye normal except for a slight exophthalmos.

Diagnosis.—Phlebitis of the left lateral sinus. The intractability of the child prevented the determination of the existence of tumefaction along the jugular or tenderness of the mastoid. May 6th, condition same; edema increased: both Mt. largely perforated.

Operation.—May 9th by Lannalogue. Under anesthesia it was apparent that neither mastoid nor jugular tumefaction existed. Trephined mastoid process, the antrum containing pus. Exposed the lateral sinus and removed a large clot in which there was no pus; no hemorrhage. Gauze drain. Wound partly sutured. May 10th, temperature less, general condition improved, the edema of the eyelid gradually disappeared. June 10th, wound completely cicatrized; otorrhoea still present but diminished. By end of August the suppuration had completely ceased. Health perfect since. Audition excellent.

Remarks.—In this case the jugular was not ligated, but in case of suppurative phlebitis, ligation of the jugular has the especial advantage of preventing the extension of infection and of keeping the circulation unaffected.

Aldeton.

The Chemical Analysis of Cerumen.

LANNOIS and MARTZ. (*Annales des Mal. de l'Oreille, etc.*, June, 1897.)

The analyses were made with ceruminous plugs as free as possible from epithelium, etc.

PRINCIPAL CONSTITUENTS OF CERUMEN.

| | C. moist. | C. dried in vacuum. |
|---|-----------|---------------------|
| Water | 56.53 | ----- |
| Free fatty acids | 1.30 | 2.99 |
| Fats | 3.55 | 8.16 |
| Cholesterine | 3.07 | 7.06 |
| Soaps sol. in alcohol | 7. | 16.10 |
| Urea | 0.20 | 0.49 |
| Substances sol. in water, cold & boiling | 11.29 | 25.96 |
| Diff'rent substances and loss | 2.66 | 6.15 |
| | 100.00 | 100.00 |
| Total nitrogenous substances | 2.7 | 6.21 |
| Ashes | 3.08 | 7.08 |
| Acids totally insoluble | 8.63 | 19.84 |
| Lecithine | 1.63 | 3.74 |

Conclusions.—(1) The fatty matters soluble in alcohol and ether constitute more than one-third of dry cerumen.

(2) The yellow pigment of cerumen seems analogous to the pigment of human fat.

(3) It is probable that leucomaines exist in cerumen.

(4) The bitter principle of cerumen is still undetermined. We can only say that it is soluble in water and alcohol and that it probably involves an acid which we propose to study and ultimately characterize.

Alderton.

Three Cases of Lateral Sinus Thrombosis, with Abscess of Internal Jugular Vein. Operation. One Recovery.

LELAND, Boston. (*Transactions of the American Otological Society.* 1897.)

Case I.—A woman, 32 years old. Nov. 6, 1894, preliminary operation terminated with the Wilde incision on account of the character of the pulse. The patient improved for some days, but very soon there were marked fluctuations of temperature, stiffness and pain in the neck, and (perhaps) mild delirium. Nov. 20. Operation. The pneumatic mastoid contained comparatively little pus. The sinus was exposed and an adjacent epidural abscess evacuated. Further removal of the bone disclosed an opening into the thrombosed sinus. The presenting wall of the sinus was first split and then removed with scissors, as was also the thrombus, which contained a yellow central mass. The wound was packed with iodoform gauze. Serious symptoms abated until December 1, when general pain all over the body was complained of. Temperature 103°. Dec. 4. Middle and posterior fossæ opened; a tro-

car passed into the cerebellum; no pus. Dec. 5. Death. Autopsy showed obliteration of right lateral sinus; purulent softening of thrombus in beginning of right internal jugular. Small old adherent thrombus in *left* lateral sinus with no disease of corresponding ear; acute sero-fibrino-purulent meningitis. The reporter believes that if the right internal jugular had been ligated and cut off and the sinus irrigated from below it might have saved life. The infection was a streptococcus one.

Case II.—A boy, 8 years old. Following a purulent otitis there developed mastoiditis which perforated the posterior wall of the external canal. Thrombosis of the lateral sinus being suspected, the latter was exposed; no blood or pus could be aspirated with needle, and an opening three-fourths of an inch in length was carefully made, and the dull-colored fibrinous clot removed piece by piece. When the bulb was reached there was a flow of pus. "Iodoform gauze wicks were inserted one and one-fourth inches from the opening, which was slightly lower than the top of the bulb," also into the vessel at the top of the incision, into the aditus and into the external canal. The patient recovered.

Case III.—Man, 27 years old, who had purulent otitis media for six years, with cessation of discharge, pain in the head, and shortly afterward chills, nausea, vomiting; no swelling or tenderness over mastoid or emissary vein. Operation on mastoid showed a latent chronic purulent mastoiditis, the antrum containing flaky inspissated debris with granulations. The whole sigmoid sinus down to the jugular bulb was exposed, and the thrombus was seen to begin just posteriorly to the bulb and to fill the bulb also. "The exposed area was so markedly septic, the swelling of the neck so hard and extensive, the operation having lasted one and one-half hours, it was determined to rest operative procedures and to await developments." The patient died a few days later. *Hardie.*

Head Obstruction with Reference to Aural Disease.

LELAND. Boston. (Read at the annual meeting of the Massachusetts Medical Society June 8, 1897.)

After a brief enumeration of the varieties of head obstructions, the following resulting subjective symptoms are discussed in greater detail: (1) A feeling of pressure in the ear. (2) Deafness due to fixation of the ossicles from simple pressure on the Mt. (3) Tinnitus, particularly

the pulsating or throbbing variety. (4) Pain, rare in the insidious closure of the tube, frequent with the congestions accompanying colds, when it is sometimes followed by (5) Effusion and (6) Discharge. The appropriate treatment is briefly outlined.

Hardie.

A Case of Otitic Brain-Abscess in the Occipital Lobe.

MORF, J., Winterthur, Switzerland. (*Archives of Otolaryngology*, XXVI, No. 3.

The patient, a man aged 56, three months before had chilly feelings, pain in the right ear and occipital headache. Paracentesis of Mt. had been done on two occasions without relief.

On examination the right external ear was slightly prominent; over the mastoid there was moderate edematous swelling; the fossa mastoidea was tender, the posterior upper wall of the auditory canal markedly protruded downward, so that the Mt. was not visible. Rinné negative on the right side. *Cranio-tympanic* conduction lateralized to the right ear.

About 2 cm. behind middle of posterior border of mastoid there was a small area tender on pressure. Patient complained of right occipital headache. Temp. 36° C. Pulse 72-76, No vomiting; no dizziness; no changes in the fundus of the eye; no hemiopia; no otorrhea.

Nine days later, over the right concha and entering backward over the mastoid, there was marked swelling, with deep fluctuation. Pain in the right temporal and occipital regions. On incision a sub-periosteal abscess was evacuated, and by chiselling the mastoid antrum was opened and a probe passed into the tympanic cavity. Although the mucous membrane was deep red and swollen, the cavity contained no fluid or pus. For five weeks there was steady improvement. Suddenly severe pain set in above the ear and in the right frontal region. Temp. 37.3° C., pulse 104. He vomited twice. Well marked optic neuritis developed on the right side. Left arm and left leg gradually became completely paralyzed; there was left hemianesthesia, the mouth was drawn to the right; there was obliteration of the naso-labial fold, and occipital and frontal headache complained of.

Operation was refused; the speech became stammering, respiration stertorous, pulse small and fast—140-144, loss of control of sphincters and death.

Autopsy revealed cerebral vessels tensely filled, pia

mater very edematous. Two and one-half cm. behind the angle of the sinus transversus the dura was thickened and dark reddish-brown over an area one inch in diameter. The pia was only slightly darkened and loosely adherent to the dura. Beneath this point in the dura lay a cavity in the bone two-three square cm. in size and one-half cm. deep. This was filled with granulations and communicated by means of a canal three and one-half cm. long, with an isolated cell in the mastoid, lying about three and one-half cm. behind and outside of the antrum. This cell, like the canal, was filled with granulations, contained no pus and was imbedded in compact bone. All sinuses were uninflamed and patent, the Mt. and ossicles were normal, but there were signs of congestion of the mucous membrane of the middle ear. On making a section of the brain two communicating abscess cavities were found; the smaller about three cm. in diameter, lay two to three mm. beneath the cortex, and its wall was formed of the cortical layer of the third and the lower half of the second right occipital convolution. Both abscesses were full, the larger containing one ounce of greenish-brown non-fetid pus.

The larger cavity was 4.8 cm. long and 3.2 cm. wide. Its posterior wall was three cm. from the extremity of the occipital lobe, the anterior two cm. from the nucleus lentiformis and one to one and one-half cm. from the thalamus opticus. It lay above the posterior horn of the lateral ventricle. No signs of meningitis anywhere. The ventricles contained a practically normal amount of clear cerebro-spinal fluid.

Campbell.

Auditory Hallucinations.

PETERSEN. Birmingham, England. (*Birmingham Medical Review*, March, 1897.)

The paper deals chiefly with the clinical aspects of auditory hallucinations in the insane and is of especial interest to the alienist.

Hardie.

Three Fatal Cases of Otitic Brain Disease.

SHEPPARD, J. E. Brooklyn. (*Archives of Otolaryngology*.)

Case I.—A man, aged 35 who, as a sequel to bathing, has pain and discharge in the right ear. This had persisted for three and one-half months. The pain now is severe and constant. Extends from the right ear to the vertex; he had a staggering gait; pulse 92, temp. 98.4° F. Mastoid and side of head free from tenderness. The posterior superior canal wall near Mt. is bulging, Mt. opaque,

not perforated, not reddened, but posterior half slightly pushed out. Rinné negative. Eye-grounds normal; pain began to increase and delirium supervened. A diagnosis was made of mastoidsitis with meningeal involvement.

The mastoid was opened and in it found a quantity of pus and granulation tissue. While curetting this out the lateral sinus was opened. Owing to a softened internal table, the resulting free hemorrhage showed the sinus to be clear. A trephine opening was made just above the external auditory meatus and the dura found inflamed. With the exploring needle no collection of pus could be found. During the next 36 hours there were several convulsions, patent semi-comatose pulse 110 to 130. Temp. 100° F. to 102° F.; anuria for 24 hours, then that which passed contained albumen and a moderate amount of sugar. The mental condition improved and patient conversed with ease. The circulation then began to fail and death took place on the third day after the operation.

An autopsy was not allowed.

Case II.—A delicate boy, aged seven, whose right ear began discharging during dentition, and this was worse after scarlet fever at three years of age. One week ago pain commenced in the right ear, with increased discharge. There was headache in both frontal and occipital regions. Three days ago he vomited; has seemed drowsy, sleep restless; two or three times slight delirium, but no "high fever" or chills.

On examination the pulse was rapid and weak. Temp. 100° F.; head drawn backward, pupils enlarged, sluggishly responsive to light. Eye-grounds about normal. Mastoid very tender, but external evidence of trouble; external auditory canal full of fetid pus, with some cholesteatomatous masses. The posterior wall is markedly bulged, the Mt. perforated in the posterior inferior quadrant and the attic region is much bulged. To drain the attic a carious malleus was removed, then the mastoid antrum was opened and cleared of granulation tissue and cholesteatomatous material; when the first button of bone was removed very offensive pus welled up, and this was found to come from an epidural abscess in the vicinity of the lateral sinus.

For 48 hours the mental condition was improved, neck not so much retracted, slept better, but cries out frequently on account of frontal pain. On dressing the wound no pus was present. Marked motion of the brain with respiration

but none with the pulse. Later in the day coma supervened, muscular twitching and death. No autopsy was made.

Case III.—Man, aged 22, whom author treated four years before for chronic middle ear suppuration and nasal septum deflection. At that time the nasal trouble was corrected and the ears ceased discharging within a month. For three and one-half years he had no ear trouble; then he had syphilis in and discharge from the left ear. There was pus and cholesteatomatous material in the canal, but under treatment this disappeared in one week's time. Six months later the left ear began to feel stopped up, was slightly painful, and there was considerable pain in the occipital region. Three days later the ear discharged and the head felt better.

On examination the auditory canal contained sero-pus, cholesteatomatous masses, a large posterior perforation of Mt. existed. Shrapnell's membrane was reddened.

For several days temperature varied from 98.4° F. to 101.1° F., with pulse 90 to 96. The Mt. and surrounding parts became more inflamed and tenderness developed over the antrum. The antrum was opened by chiselling through an intensely hard sclerotic bone, and a few drops of pus but no cholesteatomata found; a necrotic malleus was removed, but the incus, on account of free hemorrhage could not be found.

For several days the head symptoms were less severe, what pains there were being referred to the vertex. The temperature rose from 101.4° F. to 104.6° F., and pulse increased to 128. The eye grounds were normal, there was occasional delirium and the opinion held that there was probably an epidural abscess with commencing meningitis. The cranial cavity was opened just above the external auditory canal. The dura was distinctly inflamed, but no pus or bare bones found. Another opening posteriorly was made for investigation of the posterior fossa and cerebellum with a negative result. The patient gradually became weaker after the operation and died the following day.

On autopsy there was lepto-meningitis of both base and convexity of the brain. All sinuses were free from clot. At the apex of the petrous portion of the temporal bone there was an epidural abscess near the foramen lacerum medium, which extended toward and involved the pituitary body. The bony walls of the carotid canal were softened,

and the inference was that the infection extended from the tympanic cavity along the carotid canal.

Campbell.

Report of Cases of Complications of Middle Ear Suppuration.

THIGPEN. Montgomery, Ala. (*Archives of Otology*, XXVI., No.3.)

The author reports four cases.

Case I.—Empyema of the right antrum, which perforated posteriorly with an escape of pus along the groove for the lateral sinus. The sinus was not affected. The extra-dural abscess communicated with the outer surface of the skull by a small fistulous opening at the occipito-temporal suture.

By operation the fistulous track was enlarged, the lateral sinus and dura exposed and the mastoid antrum opened and cleared of a quantity of pus and granulation tissue. The patient recovered, with normal hearing distance.

Case II.—On marked evidence of mastoiditis operation was performed. The entire external plate of the mastoid was removed by curette. The tympanic cavity was entered and the carious ossicles removed. For three months there was improvement; then symptoms of septic poisoning supervened, with considerable headache, and at times delirium. The lateral sinus was exposed and found to be normal. The bone around the sinus was carious and soft. This was removed and there escaped a small amount of offensive serous fluid, which evidently came from meningeal inflammation. From this time an uninterrupted recovery was made.

Case III.—Is one of middle ear suppuration which had existed for years; the mastoid was found thickened and sclerosed and contained a small quantity of very offensive pus. There was present a small fistula through the tegmen tympani, through which pus entered the middle cranial fossa, causing the formation of an epidural abscess, abscess of the temporo-sphenoidal lobe, a localized purulent meningitis and death.

Case IV.—One of acute suppuration of the middle ear, where paracentesis gave much relief. Symptoms of mastoiditis supervening. Operation was performed without finding pus. Pyemic symptoms developed and abscesses formed in the left leg, shoulder and in the lungs. These were evacuated, and though the course of the disease was very prolonged there was ultimate recovery. *Campbell.*

Acute Suppuration of the Middle Ear and Its Treatment.

WEIL, Stuttgart. (*Klin. Vorträge aus dem Gebiete der Otol.* Band 1, Heft 8.) Review by Jankelevitch, in the *Revue-Hebdom. de Laryngologie.*, July 3, 1897.)

The writer first gives a short exposition of the pathogeny, symptomatology, diagnosis and prognosis of the process. As this part of the work does not contain anything original we will speak only of the different methods of treatment which he uses. He naturally lays great stress upon prophylactic treatment. Whenever one observes a catarrhal condition, however slight, of the naso-pharyngeal region, one should assure himself that these organs are antiseptic, for in them the otitis most frequently originates. The writer cautions one against a habit which prevails among more or less cultivated classes: that of blowing the nose with both nostrils closed at the same time. Nasal douches are also a frequent cause of acute inflammations of the middle ear. So he rarely uses nasal douches. He prefers to let the patient inhale the liquid before injection, or he simply puts it first in the one, then in the other nostril.

If the patient presents himself when the affection first appears, that is to say before perforation of the drum membrane, the writer recommends hot applications and that the patient be put in bed, if possible. Also, to instil by drops, several times a day, a 5-20 per cent. solution of phenicated glycerine. He rarely uses cold applications (Leiter's tubes), or leeches.

To quiet the pain, several drops of a warm solution of cocaine, 5-10 per cent. in the ear. Sometimes, 50 centigrammes or 1 gramme of antipyrine is prescribed, or 60 centigrammes of lactophenine. The patient may be told of the dangers of such procedures as those of Valsalva or Politzer, without entering into particulars.

Should the symptoms increase in gravity, one must have recourse to paracentesis without delay. The canal should be cleansed with a 5 per cent. solution of carbolic water or a solution of sublimated alcohol or a weak solution of sublimate in water. All the instruments must be as aseptic as possible. If the paracentesis is followed by a discharge of pus, an injection of warm salt water, previously boiled, or a two-third per cent. boracic solution should be made. The writer does not think that dry treatment can lead to good results unless given by a specialist, the injections to be continued for several days. These may be followed by

insufflations of small quantities of pulverized boric acid, and an astringent like the subacetate of alum may be put in the canal (half a coffee spoonful in 250 grammes of water).

Sometimes the patient presents himself when the supuration has been going on for some time. If the perforation is well situated and shows sufficient dimensions, one should rest content with the indicated treatment; should the contrary be the case, the perforation should be enlarged, or another should be made at the most favorable point. Any existing granulations should be cauterized with nitrate of silver, either in substance on the tip of a sound, or in a 30/40 per cent. solution. When the granulations are too large, they should be subjected to ablation by means of Gruber's polypotome.

The writer very seldom uses the galvano-cautery in affections of the ear. Operations should be preceded by the introduction of several drops of a 5 per cent. solution of cocain. Anesthesia secured in this way will render operations supportable.

In suppurations of the attic, the writer uses a canula connected with a small bulb by means of rubber tubes. This is especially useful when one is obliged to operate without an assistant. When the inflammation extends to the mastoid, one should limit oneself at first to painting with iodine; cataplasms, ice-caps, and Leiter's tube should be applied. But if the process continues, medical treatment should be abandoned for surgical. With children, Wilde's incision is generally sufficient. With adults, the bone must generally be trephined. In such cases, one follows Stacke's or Schwartz's method.

Different Methods of Massage in the Treatment of Otitis Media Chronica.

DANTAN. (Thesis abstracted by Liaras in *Revue hebdom. de laryngologie*, May 22, 1897.)

The author distinguishes two general classes of massage:

1. Indirect or mediate, by air successively condensed and rarefied.
2. Direct or immediate.

Among the indirect are Valsalva's method, Politzer's Toynbee's (rarefaction in the tympanum followed by rarefaction in the canal), Cousin's (centrifugal condensation and rarefaction), Siegle's (condensation and rarefaction by the centripetal method). Kirchner's method acts as Siegle's. Hommel's method (intermittent condensations

with the finger upon the tragus) is the intermediate method between massage properly called; and that of Delstanche. Indirect massage is obtained by phonotherapy or by Garnault's electric vibrator. This method has incontestably great advantage. It is useful when the ossicular chain has lost only a part of its elasticity and mobility and is contraindicated when the sclerous process is advanced. The author gives his preference to Delstanche's method. Phonotherapy, prudently employed in certain forms of chronic nervous otitis, gives good results, probably through the mechanical vibration alone. In a general way, the action of indirect massage is limited in great part to the tympanum.

Direct massage is practiced by the tube (paraffine injections, catheterizations followed by injections, etc.); by the external canal with Lucae's sound. The vibratory massage, direct and rapid, is a question of the day. Direct massage has the enormous advantage of acting upon the ossicular chain; the manual method appears the most rational and satisfactory. The use of Lucae's sound is at present the most efficacious process. To Garnault himself, it does not appear to be indispensable to obtain the best results to produce vibrations as rapid as those obtained by his instrument; he believes it to be difficult of application.

Direct massage of the tube and of its pharyngeal orifice has a certain utility.

Massage maintains satisfactory audition during a variable length of time. Prognosis is subject to the earliness of intervention, the hygienic conditions surrounding the patient, to his constitutional condition and to the variety of sclerosis. Dry hereditary middle otitis develops as it will and even takes a more rapid course under active treatment.

If the ossicular chain is completely immobilized, one should renounce massage and employ surgery, the extraction of the ossicles; in certain cases, that of the stapes itself being the last resort.

Alderton.

A Novel Method for the Use of Dry Heat in Middle Ear Disease. Otagia, Etc.

VANSANT, E. L., Philadelphia. (*Journal of the American Medical Ass'n.*, October 2, 1897.)

The apparatus consists of a metallic bulb or barrel containing a piece of carbon, a rubber hand ball air-compressor and a long straight-pointed steel nozzle. The bulb

is heated sufficiently by being held over a flame and a current of air is then forced through it by means of the hand ball, thus forcing the hot air from the nozzle of the instrument. It is of service in otalgia, otorrhea, (dry treatment) pains following rupture of the drum head during acute otitis media, and chronic purulent otitis media. In treating catarrhal conditions of the eustachian tube and middle ear, the heated air may be directed through a hard rubber eustachian catheter.

Loeb.

Remarks Upon the Non-operative Treatment of Chronic Suppurative Disease of the Antrum and Tympanum.

BUCK, A. H., New York. (*Medical Record*, September 25, 1897.)

While conceding the value of surgical procedures, the writer believes they are used in many cases in which the simple cleansing methods would be found quite as effective but unless the cleansing is carried out in a minute and painstaking manner, and at frequent intervals (two or three times a week), at best only a temporary amelioration will be secured. If the symptoms do not indicate an extension to important neighboring organs, (in which case operation is indicated) and if the opening in the tympanic membrane is fairly large (2 or 3 mm.) there can be no question of giving the cleansing method a fair trial. The method is more likely to fail if the opening be small, but a limited myringectomy may overcome this drawback. If the pus finds an outlet through the membrana flaccida, ossiclectomy is indicated.

The method consists in removing all granulation tissue, cast-off epithelium and detritus and the destruction of all pathogenic germs by chemical means. Injections of hydrogen dioxide are advocated, not solely on account of its germicidal action, but also on account of the active effervescence. When the cavity has been cleansed and made aseptic, powdered iodoform, euophen, or aristol, etc., should be introduced in liberal quantity and allowed to remain there indefinitely. A decided majority of the cases treated this way have been successful.

Loeb.

II.—NOSE AND NASO-PHARYNX.

A Clinical Study of 701 Cases of Naso-Pharyngeal Adenoids Observed in 2000 Dispensary Patients.

ARROWSMITH, H., Brooklyn. (*New York Medical Journal*, August 28, 1897.)

The material was seen in the clinic of Dr. Jonathan

Wright, in the Brooklyn Eye and Ear Hospital; 858, or 42.9 per cent. were subjects of disorders of the tonsils, faucial, pharyngeal, and lingual.

| | |
|--|-----------------|
| Of adenoids alone,----- | 18.4 per cent. |
| Of adenoids and tonsils,----- | 16.65 per cent. |
| | <hr/> 35.05 |
| Of tonsils alone----- | 5.05 per cent. |
| Of hypertrophy of the lingual glands,----- | 2.8 per cent. |
| | <hr/> 42.9 |

Of the symptoms caused by adenoids, for relief of which the patients came, by far the most frequent was difficulty in nasal respiration, 586 times. Next in frequency were symptoms referred to the ear, 243 times; and more rarely complaints were made of epistaxis, eczema of the nostrils, cough and hoarseness, headache, spasmodic croup, asthma, cervical adenitis, "snuffles," choreiform and epileptoid attacks, convulsions, and various disorders of speech.

In the cases of lingual hypertrophy, the most common symptoms were a sensation of dryness in the throat with irritable cough, or the sensation of a foreign body, dysphonia, aphonia, dysphagia, dyspnea, and loss of acuteness of taste. In nine instances, concomitant hypertrophy of the faucial and pharyngeal tonsils was noted—two males, seven females. Above the age of 25 years the faucial tonsils were enlarged in five cases; and they, as well as the pharyngeal, in one patient 43 years old. All these patients were females.

Adenoid operations under ether, 204. Adenoid operations under ether, local anesthesia (or without), 51. Total 255.

In not a single one of the 701 cases has there been the slightest indication of a tuberculous tendency in these structures discoverable on gross examination; and examinations histological, bacteriological, and by inoculation, in twelve consecutive cases, have also been absolutely negative.

Morgenthau.

The Symptoms and Treatment of Chronic Suppuration of the Maxillary Antrum.

BARON, Bristol. (*Bristol Medico-Chirurgical Journal*, March, 1897.)

Nothing new is advanced, but the symptoms and diagnosis are set forth in an orderly and complete manner. They are too well known to require enumeration here. The treatment preferred is drilling through the alveolar

border anywhere from the first premolar to the second molar. The silver tube which may be clamped to a convenient tooth is removed by the patient two or three times a day, and the antrum syringed with a warm antiseptic solution.

Hardie.

The Sequelæ of Grippe, Involving the Accessory Cavities of the Nose.

CLINE, Indianapolis. (*The Laryngoscope*, August, 1897.)

A brief resumé of the subject written for the general practitioner, rather than for the specialist. Two cases, in which the purulent affections of the frontal, ethmoid and maxillary sinuses were associated with great mental and physical depression, are reported.

Hardie.

Subacute Inflammation of the Frontal Sinus.

FORESTIER, Aix-les-Bains. (*Archives Internationales de Laryngologie, Rhinologie and Otologie*, July and August, 1897.)

The patient has been unwell since the war of 1870. He had frequent headaches with swellings on the forehead and purulent discharge from the nose. In November, 1896, an abscess was opened on the forehead and raw bone was discovered. Operation was performed on December 5, on a half comatose patient. There was pus in the frontal sinus which had made a labyrinth of canals in the diploe, and finally entered the cranial cavity, where it communicated with an extra-dural abscess. The operator was afraid to clean it out, because he had no trephine (?). The patient died; no post mortem. The etiology must therefore be hypothetical.

Holinger.

Atrophic Rhinitis.

RHODES, JOHN EDWIN, Chicago. (*Journal of the American Med. Ass'n.*, June 26, 1897.)

The writer reviews the opinion of numerous authors as to the cause of the disease, apparently favoring the theory that it results from hypertrophic rhinitis, particular reference being made to the case of a girl in whom the atrophy appeared two years after the patient presented the evidence of well marked hypertrophic rhinitis. He disputes the claim made by Abel that the disease is infectious, and agrees with Zuckerkandl that it is neither hereditary or congenital. In the 142 cases in private practice observed by the writer, 80 were males, and 62 females; the youngest was 6, and the oldest 81; 3 were under 10, 37 between 15 and 25, 58 between 25 and 40, 15 between 40 and 50, and 8 be-

tween 60 and 65. In 47 the sense of smell was impaired, and in 20 there was anosmia. In 28 the hearing was affected; in 8 there were signs of tuberculosis, in 2 a distinct scrofulous history, and in 5 there was a history of syphilitic infection. Involvement of the accessory sinuses occurred only once in the 142 cases.

The prognosis as to cure is bad, as to improvement, good.

By way of treatment, various cleansing agents are mentioned, followed by the application of a mixture of the following: Sodium biborate, yellow oxide of mercury, iodol, cocain hydrochlorate, (2 per cent.)* magnesium carbonate and sugar of milk.

The various remedies and procedures which have been advocated, receive appropriate notice. *Loeb.*

Influence of Adenoid Vegetations on the Growth and Configuration of the Upper Maxilla and Septum.

GLEITSMANN, J. W. (*Journal of Laryng., Rhin. and Otol.*, July, 1897.)

The writer inclines to the views of Koerner and Waldow who made very careful examinations on the dead and living subjects. He states that when nasal respiration is imperfect in a growing child during a long period by reason of adenoid vegetations, the palate assumes a higher elevation in time and appears dome-shaped in a section instead of slightly curved. The alveolar process, instead of being semi-circular, is elliptical and the lateral parts approach each other. Consequently the antero-posterior axis is elongated, while the lateral is shortened. Such are the conditions found when adenoid vegetations are present before second dentition, and in cases of occlusion of the choanæ. To the writer, the assumption advanced that adenoids produce a change in the bony substance, is nothing more than a hypothesis. The before-mentioned observers do not explain why the condition is not more aggravated in cases of choanal occlusion persisting after dentition.

When adenoids have not been removed previous to second dentition, the changes are more pronounced, the alveolar processes approach more closely, the palate often

*There is room for considerable discussion regarding the advisability of applying cocain to the nasal mucosa two or three times a day in a disease which requires continual applications for so long a time as atrophic rhinitis. However careful one is to follow out the writer's injunction to limit the dispensing of the powder to the physician himself, a serious problem stares the laryngologist in the face each time he prescribes it.—LOEB.

appears as a pointed arch, the maxilla assumes the V shaped form, the median incisors are turned on their axis and the lingual surfaces stand opposite to each other. If the growth of the maxilla has been retarded, there is not sufficient room for the teeth, and they are crowded out of their normal place. The result of the elongation of the antero-posterior axis of the upper maxilla and of the oblique position of the incisions, is, in some cases, the want of approximation of the teeth anteriorly.

It is generally admitted that a high arched, narrow palate, is associated with deflection of the nasal septum. Since Koerner never saw a case of deflected septum before second dentition, it is not presumptuous to consider that adenoids play an important role in the causation of septal deviations. Two explanations of the development of these morbid changes are given: 1. Nasal respiration being impeded, growth of the nose is retarded, the nasal cavities remain smaller and the palate becomes elevated. 2. The lateral pressure which the cheeks exert against the maxilla when the mouth is open produces in long standing mouth breathers a narrowing and lengthening of the alveolar process and the superior maxilla becomes elongated in its longitudinal axis, while the lower maxillary retains its natural form.

Loeb.

Four New Cases of Rhinoliths Due to Cherry Stones.

GAVEL, LYON. (*Annales des maladies de l'oreille du Larynx, du Nez et du Pharynx*, September, 1897.)

It is interesting that none of these patients, although adults, knew anything of the presence of the foreign body, nor how it entered the nose. In each case a cherry stone was found which was partially encrusted with lime salts. It had caused anosmia, fetid coryza, headaches and granulations, that resembled polypi. In each case the stone was located in the left nasal fossa, because, as the author thinks, the left nostril is narrower than the right. Once there was an empyema of Highmore's antrum. It healed after a few irrigations of the cavity. The rhinolith was either pulled out through the nose, or pushed back into the naso-pharynx. In each case the symptoms subsided a few days after the corpus delicti was removed. The diagnosis was not always easy. The author mistook one rhinolith for a sequestrum, due to syphilitic necrosis, and gave iodide of potash without success. The error was discovered later.

Holinger.

Excision of the Tonsil by Means of the Galvano-Cautery Snare.

GIBB, Philadelphia. (*The Laryngoscope*, July, 1897.)

The author after referring to the various methods of removing tonsillar hypertrophies, mentions the following conditions as indicating the use of the galvano-cautery snare (Gradle's).

In children who have large, irregularly shaped tonsils, filling the fauces, which present a vascular appearance with perhaps large veins coursing across their surface.

In cases where the pillars are so stretched out and adherent to the tonsils as to defy attempts at separation.

In adults, especially, those whose tonsils present a hard fibrous appearance.

Nervous, irritable subjects, either adult or child, in whom the dread of a cutting instrument is almost unconquerable.

Campbell.

Influence of Adenoid Vegetations on the Development and Formation of the Upper Jaw and the Septum.

GLEITSMANN, New York. (*Annales des maladies de l'oreille du nez, du lar. et phar.*)

The author states that long ago the relation of high palate and deviation of the septum to adenoids was proved. He shows that the antero-posterior axis of the jaw increases in length and the transverse one decreases. The inner surfaces of the teeth become turned toward each other. He finds the cause of the high palate and deviated septum in lack of development of the nasal cavities from inactivity. For the elongation of the antero-posterior axis the weight of the tongue is held responsible, because in the open mouth it acts more toward the front. With the mouth closed, the weight is more evenly divided.

Holinger.

Statistics of Operations on the Nose and Larynx in the Hospital at Lariboisiere.

GOUGENHEIM, Paris. (*Annales des maladies de l'oreille du nez et du Larynx*, 1896.)

There were over 1,300 operations done in Gougenheim's clinic in the Lariboisiere hospital. It is a matter of course that in this vast number of patients, those diseases which in private practice are seen but once, every few years, occur quite frequently. The greatest number of operations are for nasal polypi (200). Of the rarer cases there are two incisions of abscesses of the septum, two operations for closed choanæ. It is agreeable to notice that the fad

of cutting every uvula has disappeared; there are but two cases. Twenty maxillary sinuses were opened, all from alveoli of the teeth. Two frontal sinuses were trephined; 471 operations for adenoids, and 235 tonsillotomies were done. The adenoids were operated upon with the curette or forceps, and without narcosis; 342 polypi of the vocal cords were removed.

Holinger.

Diagnosis and Treatment of Affections of the Frontal Sinus.
FEHLEISEN, F., San Francisco. (*Medical Record*, August 7, 1897.)

In the large majority of cases, frontal sinus affections are caused by infection and the disease may occur with or without (more rarely) simultaneous nasal disease. The following forms may be differentiated: Sinusitis catarrhalis, blenorrhoica and pyorrhoea and an encapsulated empyema. In the more acute cases, the case begins with high fever, sometimes a chill, followed by constitutional symptoms. Perforation soon occurs, the mucous membrane frequently becomes gangrenous, and the exudation ichorous or purulent. Of the chronic forms which are more frequent, the suppurative cases often show no symptoms except a flow of pus from one side of the nose, lasting for years, and nasal occlusion accompanied by frequent headaches with more or less dizziness. In the encapsulated cases, the flow of pus is absent and the headaches more pronounced. Some forms have an acute beginning followed by acute exacerbations until the chronic form is well established.

Traumatism has been observed in a number of cases as a reliable cause, and further, tumors, parasites, and foreign bodies may be mentioned as causes.

Diagnosis in acute cases is easy; chronic cases are often mistaken for supra-orbital neuralgia, migraine, etc. Pus flowing from the anterior end of the thickened middle turbinated should arouse suspicion of the presence of the disease, and tenderness of the bone on pressure is a valuable point. Still more important is the tenderness on pressure upon the floor of the sinus, that is, the upper wall of the orbit. In cases of mucocele a simple pressure atrophy and distention of the bone follow, and the ethmoid and sphenoid may be pushed downward. In the purulent cases the inflammation extends to the bones, a rarifying otitis takes place, the bones become soft and finally perforated, though the process is much slower in the chronic than in the acute form. Perforation usually takes

place in one or two places, viz.: 1. The inner and upper corner of the orbit immediately behind and under the fovea trochlearis. 2. Somewhat behind the incisura supra-orbitalis. At both of these points the bone is pierced by veins and as the inflammation travels along these veins. One should determine the existence of tenderness by introducing the finger into the upper and inner corner of the orbit and by having the patient look downward, an attempt being made to feel behind the incisura supra-orbitalis. Commonly the tenderness is pronounced, and at times intense.

The illumination test has not fulfilled expectations, though in marked cases it is of service.

Therapy. — Hartmann suggested that air be forced through the canalis frontalis, as in Politzer's method for the eustachian tube, and Jurasz passed a sound into the duct, permitting the exit of the secretions and syringing and treatment of the sinus. Many of the early cases can be cured in this way, though it is of no service in the acute and phlegmonous cases, and it is insufficient in obstinate cases of chronic suppuration and empyema. These latter are incurable except by radical surgical procedure through the forehead. Nebinger opens the sinus widely from the front and takes away the diseased membrane while Jansen, for cosmetic reasons operates from below through the orbit. The writer strongly recommends Kuhn's modification of Nebinger's method, which contemplates not only opening the sinus widely but also removal of the frontal wall, and sometimes part of the lower wall. The bony edges are beveled so that a very shallow depression only is left, by virtue of which the cosmetic results are good and the time of treatment is greatly reduced.

The writer disagrees with Kuhn in that he always continues the operation when once the sinus is opened, rather than attempt the old treatment according to the practice of Kuhn. The point for chiselling is at the intersection of two lines, one of which connects the two incisuræ supra-orbitalis, the other being drawn perpendicular to the first from the crista lacrymalis anterior. He expresses himself as having no fear of entering the skull, as spongy bone lies between the two tables of the skull. Not infrequently the contents of the sinus pulsate, due to the many blood vessels contained in the tissues of the bone cavity. The mucous membrane is thoroughly removed and the skin is

adapted to the subjacent bone, avoiding the formation of a pouch and obliterating the cavity. *Loeb.*

Notes on the Etiology of Inflammation of the Accessory Sinuses of the Nose.

HOWARD AND INGERSOLL, Cleveland. (*Medical News*, Sept. 25, 1897.)

The paper is a preliminary report on the results of studies of eighteen cases of inflammation of the accessory cavities of the nose. Cultures were made on coagulated blood serum and on agar-agar plate. The pathogenesis of nearly all the organisms found was determined by inoculation of rabbit or guinea-pigs.

The antrum of Highmore was involved in fifteen cases. The right antrum in five cases, in three cases alone, in one case with the ethmoidal sinus, and in one case with the frontal and ethmoidal sinuses.

The left antrum was involved eight times alone. Both antra were affected in two cases, and in each of these the ethmoidal sinuses were involved.

Three of the cases of antral disease were acute and twelve were chronic. Two acute cases of antral disease followed influenza; in the first streptococcus pyogenes in pure culture was found; in the second the influenza bacillus and staphylococcus pyogenes aureus. The third case followed a severe coryza and diplococcus lanceolatus and the pseudo-diphtheria bacillus were found.

Of the twelve chronic cases two followed influenza, the first associated with a hypertrophied inferior turbinated, was complicated with facial erysipelas, an abscess of the alveolar process of the superior maxilla, and a fatal secondary septicemia, due to streptococcus pyogenes. In the second patient the cultures from antral contents gave bacillus mucosus capsulatus. In two cases of bilateral empyema of the antrum the ethmoidal and frontal sinuses were also involved. In the one a purulent discharge from the left nostril had existed for twenty-two years, and from the right nostril for twelve years. Both nasal fossa, were found filled with polypi. From the right antrum a pure culture of streptococcus pyogenes was obtained, and from the left streptococcus pyogenes and bacillus mucosus capsulatus.

Of the chronic cases three followed acute infectious diseases (influenza, coryza and pneumonia). One was due to syphilitic ulceration of the hard palate and alveolar process; two were clearly, and another possibly, due to dental

decay, and two were associated with atrophic rhinitis. In three cases there were nasal polypi present, and in three there were hypertrophies of the turbinals.

In the seventeen antra examined the streptococcus pyogenes was found in eleven; five times alone, four times with staphylococcus pyogenes aureus, once with bacillus mucosus capsulatus, and once with pneumococcus and bacillus mucosus capsulatus.

The staphylococcus pyogenes aureus was never found alone, but with staphylococcus pyogenes four times, and with the influenza bacillus once.

The bacillus mucosus capsulatus was found alone in one case, once with streptococcus pyogenes, and once with diplococcus lanceolatus and streptococcus pyogenes.

The diplococcus lanceolatus occurred alone in one case, once with pseudo-diphtheria bacillus, and once with streptococcus pyogenes and the bacillus mucosus capsulatus.

The staphylococcus pyogenes albus was found once with a non-pathogenic thread fungus, and once with an unidentified bacillus.

The frontal sinuses were alone affected in the three cases. In one case the right antrum and the ethmoidal sinuses also were involved. In the first case of frontal sinus empyema cultures gave staphylococcus pyogenes aureus and an unidentified non-pathogenic bacillus; the second diplococcus lanceolatus in pure culture; the third staphylococcus pyogenes aureus and the bacillus mucosus capsulatus.

The ethmoidal sinuses were never found alone affected, but always in association with antral empyema, and, with one exception, with empyema of the frontal sinuses as well. In the material from the ethmoidal sinuses the streptococcus pyogenes was found. In one case following influenza, where the ethmoidal disease was associated with antral empyema in the pus from the former, the staphylococcus pyogenes aureus and the influenza bacillus were found. In the last case of antral, frontal and ethmoidal empyema, from the latter the staphylococcus pyogenes aureus and the bacillus pyocyaneus were found. Tubercle bacilli and protozoa were looked for, but always with negative results.

Campbell.

Primary Syphilitic Lesion in the Nasal Mucous Membrane.

JACOBI, DR., Koenigsberg. (*Dermatolog. Zeitschr.*, 1897, IV, 3, 407.)

Primary lesions in the nose are not so rare comparatively,

le Bart having, in 1894, collected thirty-five instances, and placing them at 3.5 per cent. of extragenital cases. Usually the external nose, the alae, are affected; more rarely, the cavities; least frequently, the septum. Since that publication Chapins reported twenty-two syphilitic chancers on the nasal mucous membrane alone; Brunon speaks of thirty chancers found in the nasal fossae. Generally the following picture is presented: The surrounding skin and mucous membrane are erysipelatous; the nasal mucous membrane, reddened and swollen to an extraordinary degree, is covered with purulent secretion. The ulcer itself is hidden by a greyish-yellow grumous deposit, which can only be separated with some bleeding from the luxuriant granulations. The submaxillary glands are much infiltrated. Sometimes the same condition was found in the supraclavicular glands near the hyoid bone, which drain the lymph of the nasal mucous membrane.

The author's case is especially interesting because of the unusually high location of the sore, on the middle turbinal, which was distinctly infiltrated, and partly ulcerated and covered with grumous yellowish discharge. The mucous membrane appeared swollen, reddish, gelatinous, was sensitive to probing, and bled easily. The postnasal space was normal. The superior jugular gland at the angle of the jaw, and several submaxillary glands, were enlarged. The body, except the face, was covered with a macular rash. No lesion on the genitals. Improvement from specific treatment. The author discusses the probable etiology (transmission by finger or surgical instruments, result of sexual aberration, etc.) He ascribes the infection to the use of snuff, which is offered free of charge in the lower taverns in that part of the country. *Morgenthau.*

Worms in the Nostrils.

FOLKES, H. M., Panzos, Guatemala. (*Medical Record*, May 8, 1897.)

Discovering screw worms in the nostrils of a negro aged 24 years, the writer removed 41 with a pair of small forceps, and later 37 more. After spraying with an alcoholic solution of chloroform the patient blew 22 out of his nose. In five days 131 worms were removed, none under 10 mm. in length. *Loeb.*

On the Operation of Post-Nasal Adenoid Growths.

LENZMANN, DR. R., Duisburg. (*Therapeut. Monatsh.*, 1897, IX., 465.)

The administration of a general anesthetic in operations

on these post-nasal growths is growing in favor even with our German brethren, while with us only a minority of operators employs main force to convince a child of the comparative "painlessness" of the removal of the growths. While admitting the possibility of a quick operation, by means of Gottstein's curette, in favorable cases, the author states that it is often necessary to introduce the instrument several times in order thoroughly to free the naso-pharynx. And it is most important, because even if "remnants escaping the operator's attention do sometimes disappear spontaneously, they more frequently increase in size until a recurrence" sets in. A digital examination alone is quite disagreeable to all children and many adults. Anesthesia saves all concerned from much excitement. The author operates on patients in the sitting posture only. Small children are held by a nurse; larger ones sit on a somewhat higher chair. They are thus anesthetized with either ether or chloroform. The latter is not dangerous in children whose circulatory and respiratory organs are normal, and it permits one to control the reflexes with greater ease than ether. This is of great importance, because anesthesia is carried to the point where sensibility, but not the reflexes, are abolished. It requires some practice to select the correct moment; corneal and conjunctival reflexes may be abolished in children while they resist all manipulations.

If desirable, the growths may be well palpated. Then the tongue is depressed by a narrow spatula and the tumor severed by the Gottstein curette. The tongue depressor is removed as soon as the curette has reached the back of the tongue. While the operator is cutting, the assistant, standing behind the patient, bends the latter's head forward. The blood escapes through the nose; the severed growth is taken out with the instrument or lies behind the teeth, whence it is easily removed. Remnants of the growths may be operated upon while the head is inclined forward; sometimes a little more chloroform must be administered. Faucial tonsils can be removed at the same sitting. *Patients* have never informed the author that excision of the tonsils is not painful. He does not use a gag, because he asserts that swallowing is impossible when the mouth is kept open forcibly, and should a piece of the growth drop from the instrument, the patient could swallow it, since the reflexes are not abolished. In order, however, to make it possible to retain the severed

pieces, the author has added an elastic steel tongue to the Gottstein curette; it is fastened to the handle of the instrument, at the apex of the triangle, and stops short of the cutting edge (base of the triangle), which it would cut at right angles. As he does not use a gag, he has had the curette made with a bend of the handle, the concavity looking downward. Thus the handle may be pressed downward (and the cutting edge brought to the growths), without touching the teeth.

In regard to after-treatment, the author maintains that, although the operator's finger and instrument should, of course, be aseptic, the operation itself is not so. The field of operation can be sterilized just as little before the operation as the wound can be kept sterile by irrigations, etc. On the contrary, from syringing there is danger of middle-ear inflammation, or of disturbing the healing of the wound. It is known that wounds of the mucous membrane of the mouth and pharynx heal without difficulty, although they are besieged by innumerable septic germs. Patients are put to bed for two or three days, told to refrain as much as possible from talking, given fluid food, and then kept indoors for three or four days more. The nostrils are stopped with cotton to divert the current of air from the wound. Small pellets of ice are taken into the mouth to combat the usual reactionary swelling.

Severe secondary bleeding is ascribed to incomplete removal. The remaining vegetations, which were before compressed by the hypertrophic pharyngeal tonsil, when the latter is removed, fill up with blood. If a blood vessel in them is then injured by handling, etc., severe bleeding sets in, which really does not deserve to be called secondary hemorrhage, as it does not come from the wound. Since laying stress upon a complete operation, so-called secondary hemorrhages have not occurred in the author's practice. Marked anorexia, which, of course, leads to debility, is a not infrequent indication for operation. Often children refuse to eat without any appreciable cause. Hypertrophy of the pharyngeal tonsil is then discovered on examination. If it is situated more on the posterior pharyngeal wall, without extending from the vault into the choanae, children may seemingly breathe normally. Only seemingly, however, for they do not obtain oxygen sufficient for metabolism corresponding to the growth of their bodies. After removal of the growths, patients recover their appetites and flourish.

Morgenthau.

A New Splint for Nasal Fractures and Deformities.

HAWES, JESSE, Greeley, Colo. (*Journal of the American Med. Ass'n.*, July 17, 1897.)

The splint is intended for cases of nasal fracture in which there is a drawing upward of the point of the nose or of the alae. It consists of a piece of No. 15 spring brass wire of suitable length bent first into the form of a rectangular letter U, the arms of which are an inch apart and long enough to extend from the center of the upper lip to the crown of the head, or beyond that point. Opposite the supra-orbital ridge an angle is formed which is to permit the splint to enter the orbital cavity just beneath the orbital ridge and which is a means of fixation of the splint against the supra-orbital ridge, one of the most essential features of the appliance. The lower end (the transverse portion of the U) is carried forward away from the lip, the distance of half an inch. A piece of lintine is placed between the wire and the orbital ridge to prevent painful pressure, and the splint is held firmly in contact with the head by a broad strip of rubber adhesive plaster carried across the forehead and completely around the head. The nasal bones are held in position by pads of lintine placed between the splint and the side of the nose.

To elevate depressed portions of the nose, the writer has added two wires covered with rubber tubing for intra-nasal use. The splints are made by Chas. Truax & Co.

Loeb.

The Treatment of Suppurative Diseases of the Accessory Sinuses and Ear by Ozone Gas.

SCHEPPEGRELL, DR., New Orleans. (*Journal of Laryngology*, etc., July, 1897.)

Dr. Scheppegrell was dissatisfied with the results he obtained with the oxygen treatment of Stoker, and substituted ozone diluted with air. To manufacture gas Siemens' ozonizer is connected with an induction coil powerful enough to give a two-inch spark. The compressed air reservoir is connected with the inlet tube of the ozonizer in such a manner that the patient can control the cut-off which supplies air to the apparatus; a rubber tube connects the outlet tube with the ear or nose canula. To prevent inhalation of the ozone the cut-off is kept closed during inspiration. The applications are made for ten to twenty minutes two or three times a week. The results obtained were uniformly satisfactory.

Hardie.

Headaches From Nasal Causes.

SNOW, SARGENT F, Syracuse, N. Y. (*Medical News*, July 10, 1897.)

The author gives a tabulated review of the histories of thirty patients who had been referred to him as a last resort for relief.

Seventy per cent. of these patients appeared to have hemicrania as a result of middle turbinate pressure. Operative treatment gives the quickest and most brilliant results, one being careful to remove a little more of the offending overgrowth than is necessary absolutely to relieve pressure.

If there is reason to think that trouble arises in the accessory sinuses, these must be drained. If bony shelves, or cartilaginous thickenings of the septum, are found, they should be reduced.

In some cases one fails to find any of these deformities, but the mucous membrane has a peculiar bluish-red color, and has a sensitive or released appearance, which is an indication that, perhaps, within half an hour there will be a localised spot of pressure. This condition will respond to persistent stimulating treatment, together with general hygienic measures. He specially recommends cleansing the nostrils, then, a gentle spraying with iodol and ether, three grains to the ounce, with the preliminary use of 2 per cent. cocain solution to allay the smarting.

Campbell.

Ophthalmoscopic Diagnosis of Cerebral Complications of Sinusitis.

DE VALUDE. (*Archives Internationales de Laryngologie, d'Otologie et de Rhinologie*, July and August, 1897.)

The author says that the ophthalmoscope gives us valuable points for diagnosis of brain diseases, and goes as far as to call it "cerebroscopy." [It is too bad that everybody cannot from his own experience share this enthusiasm. It is only exceptionally the ophthalmoscope gives diagnostic evidences of intracranial complications, and especially of sinus troubles.—H.]

Holinger.

III.—MOUTH AND PHARYNX.**Pemphigus Chronicus Vulgaris of the Mouth and Epiglottis.**

MILLER, LEWIS H., Brooklyn. (*N. Y. Medical Journal*, July, 3, 1897.)

The patient, an Englishman of seventy-two years of

age, was first seen by the author in November, 1895. He stated that about one month previous he first noticed slight soreness on the inner side of the right cheek. On the roof of the mouth and on the epiglottis there were found patches of what appeared to be false membrane, which could be stripped off readily, and left a raw, bleeding surface. They were of an opaque, milky appearance, of considerable thickness, which put them in a sharp contrast to the familiar "mucous patch." The extraction of some decayed teeth had no effect on the progress of the disease, which, in spite of the antiseptic and other local treatment, spread in patches over the roof of the mouth, the soft plate, the mucous membrane lining the cheeks, covering the lower jaw, and extending under the tongue. (A diagrammatic plate is added.) A large number of laryngologists were of the opinion that it must be one of the unusual forms of manifestation of tertiary syphilis, but antisiphilitic treatment proved vain. Microscopic examinations of the "membranes" were made, and cultures taken, with entirely negative results as to diagnosis. During the autumn months the blebs appearing at the beginning of the formation of these "patches" were more marked, looking at first like bullæ, varying in size from that of the head of a pin to the diameter of a twenty-five-cent piece, translucent, filled with a fluid resembling the white of an egg slightly filled with blood. Then a light haziness began to show, soon they decidedly resembled the thicker part of an oyster, and within twenty-four hours from the time they started they would rupture and settle down to resemble the so-called "false membrane." The diagnosis of pemphigus was made on consultation of Krieg's colored atlas of laryngeal diseases. As to the pathology of this disease, practically nothing is known. It has been advanced that it is due to a spinal-cord lesion, but the truth of this theory is discredited. Kaposi found a post-mortem change in the spinal cord in only nine cases, and that was a sclerosis. As soon as the patient attempts to masticate any solid food whatever, it causes a fresh crop of blebs, thus greatly increasing the soreness. No fetor or salivation has occurred. Local applications have been abandoned by the author, and iron, arsenic, and strychnine given. *Morgenthau.*

IV.—LARYNX.

Early Hereditary Syphilis of the Larynx in Children.

ARSLAN, Padua. (*Archives Internationales de Laryngologie, Otolologie et Rhinologie.*)

Syphilis may attack the larynx in all three stages. Even a primary chancre was observed by Moure on the free edge of the epiglottis. Tertiary and hereditary syphilis after the third year is called the late form. Authors speak of early forms, before the beginning of the third year, which are very rare. But in 25,000 cases of syphilis Lewin did not find a single case of the early form. Several authors agree with this, only MacKenzie finds it much more frequent, from which the author draws the conclusion that it is often overlooked.

Arslan gives observations of his own. From these he works out the clinical aspect of the disease.

Etiology. Boys seem to be predisposed to this disease. The first evidence of the disease may date back to a few days after the birth or even to intra-uterine life. The symptoms involve mostly phonation and respiration. The voice is hoarse, which some authors think is pathognomic.

The troubles of respiration may be continuous or intermittent. If they are intermittent the attacks of dyspnea may be mistaken for croup. They occur mostly at night. Cough is a very irregular symptom. The general condition is usually bad. The most characteristic form in adults is gumma of the larynx; in children we often meet with multiple ulcerations.

Microscopical examination of the ulcerations reveals that the mucous membrane is replaced by granulation tissue. The hypertrophic form is called chronic interstitial laryngitis. There is proliferation of the connective tissue between the mucous membrane and the cartilage, that is, chondro-perichondritis. Besides, there is periglandular infiltration and dilatation of the blood vessels.

The diagnosis is often difficult. We must suspect the possibility of hereditary syphilis of the larynx in children who are hoarse from birth, and who have coryza and difficulty in breathing, especially at night. The chronic course of the disease will help to distinguish it from common laryngitis.

The prognosis is doubtful. For treatment the author

gives Van Swieten's solution. At times tracheotomy may become necessary to relieve dyspnea. *Holinger.*

Intubation as an Aid to Tracheotomy.

VON BOKAY, JOHANN, Budapesth. (*Arch. f. Kinderheilk.*, 1897, xxiii, 5, 305.)

In cases of severe dyspnea due to stenosis of the trachea or larynx, the author advocates a procedure which has been repeatedly described by American authors (Northrup; A. B. Strong, of Chicago). When the respiratory embarrassment is temporarily relieved or lessened by the introduction of an O'Dwyer's tube, the operation of tracheotomy can be done with less haste, and therefore less danger to the patient. A child of three had become so exhausted from the diphtheritic poison and the dyspnea that the author proposed temporary intubation, in order to allow the little one to recover its strength. It was thus possible to perform a careful tracheotomy a short time afterward, the tube remaining *in situ* until just before the trachea was opened. *Morgenthau.*

Multiple Papilloma of the Larynx in Children.

FRANKENBERGER. (*Annals des maladies de l'oreille du larynx, du nez et du pharynx*, July, 1897.)

Papilloma of the larynx in children are much rarer than in adults. They seem to be more frequent in poorer than in better classes. This disease in children is more dangerous than in adults on account of the narrowness of the larynx. The author says that all laryngologists advocate operation for papilloma by the endolaryngeal way, but that in children this is hardly possible. Rosenberg had fifty per cent recoveries from intralaryngeal operations in children. Yet in some cases laryngofissure cannot be dispensed with. *Holinger.*

Hysterical Aphonia.

BROWN, SANGER, Chicago. (*Medical Record*, July 17, 1897.)

From a symptomological and etiological standpoint, two fairly distinct types may be found: 1. In which it is merely an accompaniment of many other pronounced stigmata, such as hysterical pains, hemianesthesia, etc. 2. In which the symptom comes on suddenly and constitutes the sole evidence of hysteria. While many cases recover spontaneously, a great many methods of treatment have been brought forward and supported with enthusiasm. These, especially of class 2, owe their success to the sug-

gestion which accompanies the method of treatment. Among others the following were mentioned: Hypnotism, faradism, Oliver's method of pinching the posterior part of the arytenoids and vigorously shaking the larynx while the patient makes attempts to phonate, and the method of having the patient cough and at the same time pronounce certain vowel sounds.

The writer reports the following illustrative cases:

1. Policeman, aged 44, whose sudden aphonia was accompanied by nausea, sudden pains over left side and chest, and anesthesia over the left half of the body, was cured by faradism.

2. Woman, aged 31, after a railroad accident in which the patient was severely bruised, became weak, dizzy, and attacked with vomiting, severe pains, prostration and aphonia. Two weeks later she was seized with severe hysterical convulsions lasting several hours with unconsciousness and opisthotomus. After six weeks aphonia gradually improved, though she suffered many attacks of complete or partial aphonia. As patient was only seen once in consultation, nothing could be said as to results and method of treatment.

3. Miss A. A., aged 29, attendant in hospital for insane, suddenly lost her voice one morning. The attack lasted five weeks without mitigation, when it suddenly and permanently disappeared.

4. Young man, aged 20, farmer's son in good health. When he was 11 years of age he became suddenly mute after being addressed sharply by his father, and absolute muteness continued up to the present time. Laryngoscopic examination negative. He was entirely cured by faradism and the suggestion which the writer practiced upon him.

A somewhat careful perusal of the literature of the subject reveals no case at all parallel to this in point of degree and duration.

While the pathology of the disorder is hypothetical, most pathologists are agreed upon the following: The parts of the cerebral cortex which normally preside over the various disordered functions become inactive to the extent that they no longer respond to the requests of the will as before. Accordingly in aphonia, the cortical centers from which in health the motor impulse proceeds to the muscles concerned in phonation are no longer excited to activity by the volition of the patient.

Loeb.

Tracheal Injections in the Treatment of Laryngeal and Pulmonary Inflammations.

THOMPSON, J. A., Cincinnati. (*Journal of the American Med. Ass'n.*, June 26, 1897.)

Horace Green of New York was the first physician to leave a record of a systematic study of intra-tracheal medication. The slow growth of this manner of treatment in professional favor is due to the fact that few physicians are sufficiently expert to make the applications and the mistaken notion that they are painful and irritating. Differing from the larynx, the nerves of sensation are few below the glottis.

By intra-tracheal injections, direct local action of medicines upon the diseased area is obtained and no changes caused by the digestive organs must be taken into account. It is even possible to produce a rapid and prolonged general effect by these injections, showing that certain volatile agents are absorbable by the bronchial mucous membrane. Direct antisepsis which can be secured in no other way is possible, and there is no interference with digestion or any other form of treatment.

Several conditions are necessary for success in this method of treatment: Skillfulness of the physician, reasonable self-control on the part of the patient and the employment of agents which volatilize slowly at the temperature of the body and which are soluble in the vehicle employed.

The writer recounts cases of pulmonary tuberculosis, pulmonary syphilis, chronic bronchitis, chronic tracheitis and asthma which he has cured by the intra-tracheal injections. To an expert laryngologist there are few technical difficulties.

Loeb.

Surgical Treatment of Lupus of the Larynx.

GOUGENHEIM AND GUIARD. (*Annales des maladies de l'oreille, du nez, du larynx et du pharynx.*)

Since surgical treatment of phthisis of the larynx gave such good results it was evident that it might have a favorable influence on lupus of the larynx. There is so far only one case described of this procedure. The method of operating is thus summarized:

1. Median incision to the trachea.
2. Tracheotomy and introduction of Trendelenburg's canula.
3. Opening of the larynx, between the larynx and pharynx.
4. Separating the valves of the larynx.
5. Careful curetting of all

the parts, and if necessary, amputation of the epiglottis, and finally, thermo-cauterization of all the bleeding surfaces.

The author then gives an account of one operation he did after this method. These cases are very rare, but will hardly yield to any other treatment. The result of the operation was very satisfactory.

Holinger.

Remarks on a Case of Tabes Dorsalis with Laryngeal Crises and Laryngeal Vertigo.

TRESILIAN, FRED, Sidney, N. S. W. (*Journal of Laryngology, Rhinology and Otology*, May, 1897.)

G. C., aged 30, came first in September, 1895, complaining of paroxysmal attacks of choking cough for the previous eight months. They were ushered in by tickling in the throat followed by one or two violent coughs with whoops and giddiness, and they continued for one or two minutes. He complained of difficulty in walking in the dusk or darkness, and sudden severe pains in his legs and thighs. The knee-jerks were absent on both sides, there was loss of pupillary reflex to light and slight but distinct ataxia. There was no alteration of the voice, no stridor in sleep, and no dyspnoea on exertion. Nothing abnormal was found in the larynx. He contracted syphilis six years previously. Accordingly he was given iodide of sodium with antipyrine and belladonna, and also nitrate of amyl. While the cough improved considerably, the tabetic symptoms increased. Commenting on the case, the writer states that laryngeal crises are in themselves both a motor and sensory symptom of tabes and rank with other manifestations that are transitory, and not permanent. They may be classed with ptosis, external strabismus, gastric and visceral crises, which do not remain throughout the disease. The cause must be an irritation of the nuclei and not a degeneration like that affecting the fifth, optic or auditory nerve.

Loeb.

Angina Epiglottidea Anterior.

MEYJES, W. P., Amsterdam. (*Journal of Laryngology*. March, 1897.)

A case is reported in which the symptoms were sore throat, dysphagia, fever, weakness, anorexia, the appearance indicating a very grave condition.

Examination showed slight redness of the plica palatopharyngea, the anterior surface of the epiglottis very red and extraordinarily swollen, almost completely hiding the fossæ glosso-epiglotticæ, circumference of the epiglottis in-

creased, posterior surface slightly red, as well as the vocal bands. Absolute rest was ordered in addition to aqua laxativa, ice internally and externally, and an iced spray of watery solutions of ichthyol every quarter of an hour. On the following day the patient was better and the treatment continued, and the case went on to resolution.

Loeb.

Hemorrhage from the Larynx in a Patient with Alcoholic Cirrhosis.

LUBET-BARRON, Société de Laryngologie de Paris. (*Archives Internationales de Laryngologie, d'Otologie et de Rhinologie*, July 9, 1897.)

A butcher of 40 years with cirrhosis of the liver, red nose and varicosities of the veins of the pharynx had blood in the expectorations from his alcoholic cough every morning.

Holinger.

Angina Epiglottidea Anterior.

MILLIGAN, Manchester. (*Journal of Laryngology*, September, 1897.)

Two cases are reported: Case 1. The free border of the epiglottis was enormously enlarged and of a brilliant red color. There was no intra-laryngeal lesion. The most troublesome feature was dysphagia. Treatment: Rest in bed, steam inhalations containing compound tincture of benzoin and chloroform, warm boracic fomentations round the neck, spray of ice-cold 4 per cent. cocain solution. Case 2. Of septic origin, the house drainage being very imperfect. The anterior free border of the livid epiglottis was four times its usual thickness, and the aryepiglottic folds, true and false cords much swollen and congested. Dysphagia so extreme that nutrient enemata were required.

Hardie.

Contribution to the Treatment of Deaf-Mutism by Operation on the So-called Adenoid Vegetations.

SENDZIAK, JOHN, Warsaw. (*Journal of Laryngology*, April, 1897.)

A wide difference exists between the percentage of adenoids cases among the deaf-mutes and the otherwise healthy children. Thus, in regard to the former, Lemcke reports 58 per cent., Wroblewski 57.5, Peisson more than 50, Frankenberger 59.49, and Aldrich 73. Among the otherwise healthy children, adenoids were found by Meyer in 1 per cent., Doyer 5, Schmiegelow 5 of greater and 13 of less degree, Wroblewski 7 and Kafeman 9 per cent. It therefore seems probable that adenoid growths have much to do with deaf-mutism.

Two cases of deaf-mutism are reported in which adenoidectomy was performed. In both cases the hearing improved and they were able to speak more or less distinctly.

Loeb.

Two Cases of Intubation in Adults.

MOLE, Bristol, Eng. (*Bristol Medico-Chirurgical Journal*, September, 1897.)

Case I.—On admission to the hospital, the patient's cough and dyspnea were treated by leeches to the throat, diaphoretics, and steam tent, but the dyspnea became so urgent that O'Dwyer's No. 6 was introduced. During the two days it was worn, the patient had to be fed by nutrient enemata. Laryngoscopic examination, after removal of the tube, showed the left cord to be fixed by inflammatory infiltration at the base of the arytenoid. The cricoid perichondritis persisted until the patient left the hospital three weeks later. The reporter considered the condition due to cold.

Case II.—An acute septic laryngitis. The tube required to be introduced three times, when it was retained for eight hours. Abduction of the cord was extreme even after the removal of the tube. Pseudo-ankylosis of the right arytenoid cartilage persisted for two or three weeks.

Hardie.

Observations in the Use of Diphtheria Antitoxin with Special Reference to Its Use in Malignant Cases.

MCALISTER, ALEXANDER, Camden, N. J. (*Journal of the American Med. A'ssn.*, September 11, 1897.)

The writer considers that malignancy in diphtheria refers to the severity of a case rather than to its termination, depending on the seat and extent of the pseudo-membrane and the virulency of the infection. Often a small number of bacilli will produce a high degree of toxemia, determining the malignancy of the disease. In cases attended by extensive formation of pseudo-membrane, the malignancy is due to the rapidity* of absorption of toxins from the local lesion or to the mechanical impediment they cause to the respiratory function. In addition, the following may be malignant: Laryngeal cases, on account of stenosis, spasm, cyanosis and asphyxia; pharyngeal cases, complicated by glandular enlargement and parenchymatous degeneration of the kidneys; nasal and rhino-

*Why does it not also depend upon the quantity of toxins absorbed?—LOEB.

pharyngeal cases, in which the bacilli are specially thrifty.

In the administration of antitoxin, a distinction should be made between the early and late cases, for while a dose of 1000 units suffices in the former, more is required for the latter. The symptoms, hyperemia, stupor, coma, or certain physical signs, the appearance, condition and extent of the pseudo-membrane, the rapidity of spread may indicate a high degree of toxemia and mark the case as one of great malignancy, but all these form no basis for estimation of the disease. In these cases 2000 units should be given, and the dose repeated in eight to ten hours. Concentrated serum is preferable. The patient's strength should be husbanded and any undue excitement avoided, in view of the danger of heart paralysis. Sixty cases have been treated by the writer since January, 1895, of whom five died. With but few exceptions, the diagnosis was confirmed by laboratory culture. *Loeb.*

A Case of Intra-Laryngeal Mycosis.

PRICE-BROWN, Toronto. (*Canadian Practitioner*, July, 1897.)

The author, in looking over the literature on mycosis leptothrica was able to find but one other case recorded, where it had developed in the larynx, viz., that reported by Dr. de Havilland Hall, at the meeting of the London Laryngological Society, April 10, 1895.

In the author's case the vocal cords and arytenoids were hyperemic, there was irregular hemorrhagic sputum and an elongated uvula. On the left ventricular band near the center and posterior end were several white spots projecting above the surface; one of these was about the size of a grain of wheat.

One white spot was present on the right ventricular band just anterior to the arytenoid. There was no areola around any of the spots, nor were there any similar deposits elsewhere.

Patient had a most distressing cough, free expectoration and severe laryngeal pains after coughing spell.

On microscopic examination of the sputum, it was reported as being loaded with streptococci.

He was given creosote and cod liver oil internally with inhalations twice daily of menthol and creosote.

The uvula was removed. Lactic acid, 50 per cent. solution, was rubbed into the spots, pure chromic acid applied, and later 10 per cent. solution of nitrate of silver, but these simply stimulated the development. Finally, the direct

application of the galvano-cautery caused the vegetations to disappear.

No microscopical examination of the plugs appears to have been made.

Campbell.

Hypertrophy of the Lingual Tonsil, and Its Removal by the use of the Tonsillotome.

BRADY, A. J. (*Journal of Laryngology and Otology*, May, 1897.)

Hypertrophied adenoid tissue at the base of the tongue consists of two masses separated by a central division, each half being a distinct structure. Microscopic examinations of specimen showed the following structures:

1. An outer lining of epithelium which is here and there invaginated so as to form crypts similar to those found in the faucial tonsils.

2. Large masses of lymphoid tissue variously arranged.

3. A delicate fibrous reticulum, in the meshes of which the lymphoid cells are entangled and through which blood vessels and lymphatic spaces were interspersed.

The epithelial coats (1) consisted of three layers, (a) flat epithelial with rod-like nuclei; (b) oval or rounded cells with pickle-shaped processes running between them, some multinucleated leucocytes lying between them; (c) epithelial cells elongated in a direction at right angles to the free surface of the organ.

The back of the lymphoid structure (2) was made up of lymphatic tissue, in parts resembling the splenic malpighian corpuscles and in part the periphery of a lymphatic gland.

The supporting framework (3) consisted in the main of very delicate fibrils of connective tissue with fixed connective tissue corpuscles upon them, and in parts the framework was almost completely obscured by tightly packed lymphoid cells.

The symptoms include the following: The sense of foreign body in the throat, leading to frequent swallowing movements, irritating hacking cough, voice fatigue and break-down (in vocalists) huskiness and want of clearness of tone.

The methods hitherto in use have been iodine, the galvano-cautery, cold and galvano-cautery snare and chemical caustics. The writer first used the tonsillotome for this purpose in 1892, and since that time has treated 111 cases of enlargement of the lingual tonsils; 34 were subjected to tonsillotomy, 23 were treated by galvano-cautery,

and 54 by palliative measures, mainly Lugol's solution. In the 34 cases 68 tonsils were removed and after-bleeding occurred only once and was readily stopped by local astringents. The tonsillotome is indicated in large and distinct hypertrophies which project from the base and in marked nodular rough projections. Its advantages are that it more rapidly attains the end aimed at than any other means, it is free from after-inflammation, it leaves a smooth surface and it is followed by less after-pain,

Loeb.

A Very Simple and Practical Method to Keep Laryngeal Mirrors From Getting Moist.

VACHER, New Orleans. (*Archives Internationales de Laryngologie, d'Otologie et de Rhinologie.*)

The author criticises the method of Kirstein for keeping the laryngeal mirrors from getting blurred. To keep the glass wet is the main idea of his scheme. He removes all grease with a 1/100 solution of carbonate of soda, and to disinfect it he dips it in 1 to 2 per mille solution of cyanide mercury. Should it not keep evenly wet, the reason is that there is some grease left which has to be very carefully washed off with cotton saturated with solution of carbonate of soda.

Holinger.

V.—MISCELLANEOUS; THYROID GLAND; OESOPHAGUS, ETC.

Malignant Lymphoma.

FISCHER, F., Strassburg. (*Arch. f. Klin. Chirurg.*, 1897, LV., III., 467.)

This rather rare disease, occurring in twelve patients of the University Surgical Clinic within the last five years, was carefully observed by the author. Ten of the patients were men of 32, 36 and 43; and two, boys from 4 to 15; two were women of 17 and 27 years. In all the disease began with swelling of the cervical glands. The enlarged glands were of both the hard and soft variety, generally both were to be found in the same individual. The soft form is the more youthful, the cellular element being predominant, while the hard develops in the course of advancing disease, the connective tissue structure being prevalent. His results are summed up as follows:

1. Malignant lymphoma is an independent, well characterized disease of the lymph glands, the etiology of which is not yet clear.

2. In doubtful cases, a diagnosis of malignant lymphoma should be based on experiments on animals in addition to probatory excision and microscopic examination of the gland.

3. The finding of eosinophile cells in the lymphatic gland tumors does not confirm the diagnosis of malignant lymphoma.

4. Tuberculosis can be observed in the organs and also in a lymphatic gland simultaneously with malignant lymphoma, but it must be considered as due to secondary infection of the debilitated organism. *Morgenthau.*

Statistics on General Anesthesia.

GURLT, E., Berlin. (*Arch. f. Klin. Chir.*, LV., III., 473.)

Since 1891, there were reported 330,429 cases with 136 deaths. or a mortality of 1:2429.

The anesthetic agents range in regard to their dangerousness, as follows:

Pental, 1:213 (631, with three deaths).

Chloroform, 1:2075 (240,806, with 116 deaths).

Billroth's, A. C. E. mixture, 1:3370 (6,740, with 2 deaths).

Ether, 1:5112 (56,233, with 1 death).

Ethyl bromide, 1:5396 (10,793, with 2 deaths).

Ether and chloroform combined, 1:7613 (15,226, with 2 deaths). *Morgenthau.*

Syphilitic Stricture of the Upper End of the Œsophagus.

Treatment with Jaboulay's Sound.

LANNOIS. (*Archives Internationales de Laryngologie, d'Otologie et de Rhinologie.*)

But few cases of syphilitic stenosis of the œsophagus are described. The author reports a few cases from the latest literature, and gives the history of a patient of his own.

A lady of 55 became infected from her husband at the age of 30. She had a great number of mucous patches; five years later she showed signs of ulcer of the stomach and since that time she complained of pain in swallowing. Up to the time of first examination she was very poorly nourished. She was improved by treatment. [The diagnosis seems to me very uncertain, since the author does not know of any other possibility for stenosis than from syphilis and from cautery.—H]

Jaboulay's sound consists of a rubber tube which is inflated by means of a rubber ball. *Holinger.*

Acute Osteomyelitis of the Upper Jaw, Simulating Empyema of Antrum.

LICHTWITZ, Bordeaux. (*Archives Internationales d'Otologie et Rhinologie*. Société de Laryngologie, d'Otologie et de Rhinologie de Paris, Avril 9, 1897.)

After a traumatism of the left jaw the whole alveolar process became necrotic with symptoms of suppuration in Highmore's antrum. There was, however, one symptom that never agreed with this diagnosis, namely, the discharge of pus through the mouth. The patient recovered as soon as a large piece of dead bone was removed. The author gives descriptions of several other similar cases.

Holinger.

Hydrochlorate of Eucaïn in Rhinology, Otology and Laryngology, Compared with Hydrochlorate of Cocain.

MARTIN, A. (*Revue hebdom. de laryngologie*, July 3, 1897.)

Eucaïn is a derivative of cocain; it is cocain in the molecule of which an atom of hydrogen has been replaced by a base of methyl.

Eucaïn is not very soluble in water, and, like cocain, is only used as a hydrochlorate which is much more soluble. In this form, the salt dissolves in 15.6 per cent. water; the solution does not decompose in boiling like that of hydrochlorate of cocain. So one can without difficulty use only sterilized solution.

Anesthesia of the nose, pharynx and larynx, is secured with a saturated solution of eucaïn about as soon as with a 10 per cent. solution of hydrochlorate of cocain (anesthesia is complete in four minutes and lasts five or six minutes).

We have not observed the cold perspiration, syncopal or excitement tendencies, so often the case when cocain is used.

However, hydrochlorate of eucaïn produces a smarting sensation on the mucous membrane of the nose; an irritation which causes a slight cough on that of the larynx; a sensation of burning by the insufflation of a powder containing equal parts of sugar of milk and hydrochlorate of eucaïn on the pharynx.

The mucous membrane of the nose instead of retracting as with cocain, does not change, so that it is easy when anesthesia is complete, to seize the hypertrophied parts with a warm or cold snare, or the forceps; although the vessels are dilated instead of contracted, there is no increase of hemorrhage.

Resumé—Eucain has the same results as cocain, but with fewer toxic symptoms, and without retraction of the mucous membrane of the nose.

Alderton.

Oxygen Gas a Local Therapeutic Agent in Purulent Discharge From the Nose; Ear, and Suppurative Surfaces.

PORCHER, W. PEYRE, Charleston, S. C. (*New York Medical Journal*, July 31, 1897.)

The writer had the opportunity of visiting a home, under the care of Dr. George Stoker, of London, for the treatment of old ulcers, burns, chronic otorrhea, ozena, and all suppurative surfaces, by the local application of oxygen gas. His personal investigation has been confined to the local influence of the gas in cases of ozena and chronic otorrhea. The clinical results have been very gratifying. The author hopes in future to be able to show the microphotography of each case, so as to demonstrate beyond question the accuracy of the observations made. In each case of otorrhea on which the gas was used, there has been complete and prompt disappearance of the discharge and fetor. In ozena, the crusts have ceased forming, the odor has stopped, and the nose has taken on a healthy appearance. At the same time, the author states, he has not overlooked any other measures from which his patients might derive benefit. He gave as free outlet as possible to all pus cavities (ethmoid disease) and gave iodide of potassium internally for its alterative action upon the system and stimulating influence upon the excretory glands; but "this did not in any way interfere with the local influence of the gas upon the organs or change its effect."

The failure of the gas to produce any extremely marked results by inhalation has been supposed to be due to one of two causes: Either that the patient failed to absorb enough of the gas to stop the progress of the disease, or else the destruction of lung tissue was so great that the absorption of gas was rendered impossible. A patient, however, whose sputa were filled with bacilli, and who could only speak in a whisper, improved greatly under the use of oxygen inhalations, in addition to the internal administration of creosote and the injection of guaiacol with petrolum into the larynx; her voice has been restored, the bacilli have disappeared, her cough has almost entirely stopped, and her temperature is normal. She has an excellent appetite, and sleeps well.

Morgenthau.

Treatment of Goiter by Parenchymatous Injections.

ROSENBERG, DR. ALBERT, Berlin. (*Berl. Klin. Wochenschr.*, 1897, No. 37, 804.)

Injections of tincture of iodine have been abandoned largely on account of the repeated fatal accidents which followed its use (28 cases), but the mixture recommended again by Garel (*Beitrag zur Klin. Chirurgie*, 12, 1894), was employed by the author with excellent results for more than a year. The solution (iodoform 1.0 to ether and olive oil as 7.0), must be preserved in dark bottles. If it is exposed to light iodine is separated, turning the light yellow fluid dark. The syringe, if properly introduced, moves with the goiter when the patient swallows. At first, 0.5 gramme should be injected, the dose being gradually increased every fourth, and later every third or second day. Generally a slight burning pain is felt, either at the point of injection, or radiating to the head or shoulders; it generally subsides quickly, or in less than twenty-four hours. Grave symptoms, however, as syncope, etc., which have been brought on by iodine tincture, were not noted by any observer. But the patients do complain, immediately after being injected, of a bad taste, of iodoform taste, which, however, leaves after a few minutes; then, besides, coughing is caused as after other injections; now and then transient dizziness; and one nervous, anemic lady complained of nausea and vomiting. Another patient stated, about one minute after the injection had been made, that she had suddenly become hoarse. An immediate laryngoscopy revealed the left vocal cord in the cadaveric position (the injection had been made into the left lobe of the thyroid gland). After about two minutes the cord moved to the median line, and after a little while moved outward; an unexpected but instructive experimental proof of Semon's law, if the recurrent nerve is obstructed in its course, the abductors of the glottis are the first to be disturbed in their function, just as they recover more slowly than the adductors.

No other unpleasant results followed the author's treatments. Garré made over 1,000 injections without any untoward effect whatsoever. According to his investigations, even if iodoform should by chance be introduced into a vein, it would not be of any moment. One deciliter of a 10 per cent. solution was injected into a dog without causing damage. To confirm his opinion he injected 1

c. c. m. of this iodoform solution into the veins of a rabbit weighing $4\frac{1}{2}$ kgr., and repeated the injection shortly afterward (thus administering, in proportion to the weight of the body, about ten times as much as to the human being), noting only the effects of ether, but not a venous thrombosis.

As to the manner in which these iodoform injections act, whether the result is due solely to the iodine, the author is not prepared to venture an opinion. Injections of iodoform into the liver and kidneys have produced fatty degeneration of the epithelia. It is undecided if such changes are brought about in the goiters. But the unpleasant results following tincture of iodine injections are certainly not met, such as cicatrization and adhesions of the goiter to the capsule, of which surgeons complain so bitterly when such cases are sent to them for operation, after being treated in vain by injections. Garré operated personally on two patients whom he had treated ineffectually with iodoform injections, without the operation rendered more difficult by finding adhesions to the capsule.

In some of the author's cases the action was so prompt that respiratory embarrassment, due to tracheal compression, disappeared after three to four injections.

A patient of 15 years of age noticed a swelling on his neck, which had gradually increased for several months, and now caused difficulty in breathing. On taking a few steps, loud inspiratory stridor could be heard. A bilateral large goiter could be seen, and by laryngoscopy a well-marked, scabbard-shaped compression of the trachea. The patient refused to submit to extirpation of the tumor, or to tracheotomy. After three injections respiration became freer; after fifteen injections only a small remnant of the gland could be felt, and the injections were stopped for fear of cachexia strumipriva on account of the rapid dwindling of the thyroid gland substance. A recent examination, two years after his discharge from treatment, showed the result to be lasting. The author treated thirty cases, in nearly all of which the trachea was compressed by the goitre. Often marked improvement set in after a few injections, not only in younger but also in older patients. In a man of 22, pressure of a goitre on the left recurrent nerve had paralyzed the left vocal cord. After three injections the goitre diminished in size; the cord, formerly immovable in the cadaveric position, recovered its mobili-

ity, and hoarseness disappeared. When after about four weeks, the goiter increased and the cord paralysis returned, two injections sufficed to remove them. The patient seemed perfectly well at a recent examination, (three-fourths of a year later.)

In one case the result was not good; in one it was quite doubtful; twice, insignificant; thirteen times, (*i. e.*, in about 43 per cent.), the improvement was satisfactory, especially in regard to breathing; in thirteen cases recovery was complete; three times there was recurrence. In no case were more than twenty-five injections made. In the successful 43 per cent. of cases. the patients were examined repeatedly for about two years.

Such results may be expected only in parenchymatous goitre, to a less degree in mixed goitre. If stenosis has been present for some time the tracheal cartilages retain their bent shape. The embarrassment in breathing must, therefore, be attributed in great measure to the circulatory disturbance in the tracheal mucous membrane, or rather the catarrhal swelling, which arises from the compression.

The results with iodoform injections compare very advantageously with those obtained from thyroïdin. In 350 patients, Bruns, who probably has had the greatest experience with it, found that complete absorption occurs in only 8 per cent.; considerable reduction in the size of the goitre with improvement of all symptoms, in about one-third of the cases; but the goitre grows again in more than 75 per cent. after the remedy is stopped. *Morgenthau.*

Nitrate of Silver Applied with Cocain.

SAALFELD, E., Berlin. (*Therapeut. Monatsh.*, 1897, 9, 513.)

In order to make instillations of nitrate of silver solutions less painful (the author employs Guyon's method in his genito-urinary practice) the admixture of cocain has surely seemed desirable to many. Unfortunately, muriate of cocain forms an insoluble precipitate of silver chloride. In its stead, the *nitrate* of cocain is advised by S., a salt of cocain but slightly known to the profession.

Morgenthau.

A Case of Poisoning By Lactophenin.

WEFERS, DR., Leipe. (*Deutsche Med. Woch.*, 1897, 29, 468.)

Marked symptoms of poisoning by lactophenin are rare. Aside from one instance each of collapse and of jaundice, only slighter and passing effects as vomiting, light cyano-

sis, unimportant cardiac disturbances, exanthemata have been hitherto reported. The patient was a perfectly healthy, non-hysterical young woman, with a sound heart. She was in the habit of taking 0.8 phenacetin every five to six weeks for headache, without ever experiencing any untoward after effects. About twenty minutes after taking 0.5 (half) gramme of lactophenine, the lady suddenly ceased conversing, grew red in the face, and began to look helpless. She complained of dizziness, so that she was not able to remain sitting in the chair. Her pulse was accelerated, intermittent, of medium tension. After lying down for fifteen minutes, the patient's color and pulse improved, but the dizziness persisted for forty minutes. The dose of 1 gramme, which is usually recommended, is, therefore, not entirely devoid of danger. *Morgenthau.*

Treatment of Venereal Ulcers with Itrol.

WERLER, O., Berlin. (*Dermatolog. Zeitschr.*, September, 1897, IV., 5, 556.)

Itrol, the new silver citrate compound so highly recommended by Credé and Beyer in 1896, may prove of use in throat and ear practice, judging from the excellent results obtained by the author in numerous cases of venereal ulcers, some of which were of malignant, phagedenic character. He employs aqueous solution (1:4000) as a cleansing spray, and the finely divided pure powder.

1. Itrol, on account of its bactericidal energy, its long and deep action, is adopted for the treatment of venereal ulcers. By its thorough, gradual and continuous disinfecting and antiseptic powers, it brings the destructive process to a halt within a short time, and transforms the infected chancre foci into benign, clean and healthy wound surfaces without injuring the normal tissues.

2. It is free from odor, pains only to a slight degree, does not irritate, and costs but little.

3. As it does not irritate the suppurating surface of the ulcers nor cause retention of the purulent and virulent secretions from the wound, its use appears to be a prophylactic measure against the acute venereal buboes of suppurative or virulent nature which are secondary to soft chancre.

Morgenthau.

PROCEEDINGS OF THE AUSTRIAN OTOLOGICAL
SOCIETY MEETING OF JANUARY 26, 1897.

[Translated and Abridged From the *Monat. f. Ohren.*, Feb. 1897, by
H. A. Alderton, M. D.]

I.—The Operative Treatment of Cholesteatoma of the Temporal Bone, by Prof. Gruber.

G. presented a man upon whom he had operated for cholesteatoma of the temporal and prevented the usual sequelæ by keeping open the wound cavity in the mastoid process. Patient somewhat feeble, 25 years old, otorrhea in left ear ever since fifteenth year. The aural trouble gave no annoyance until fourteen days previous to January 30, 1896, when marked headache with fever, tinnitus, marked tenderness and swelling in the mastoid region. Upon examination, January 30, temperature 39°; pulse 108: right ear and all organs normal. Left ear—the external auditory canal, narrowed by the projection of the soft parts of the posterior-superior wall, filled with macerated epidermis; whereby the condition of the deeper parts could not be determined exactly. A nut-sized, fluctuating tumor over the mastoid; the skin covering which appears of a livid color. Hearing: Watch zero, Weber heard in the affected ear. Operation January 31, 1896. The usual incision evacuated considerable offensive, ichorous pus; a very small perforation in the bone led into a fistulous canal penetrating deeply. Upon chiselling away the hard cortical substance a cavity filled with cholesteatoma was disclosed, 3 cm. deep and 2½ cm. wide, communicating through an enlarged antrum with the tympanum. Upon irrigation, communication was freely established with the external auditory canal. Everything noxious in the operation wound was now thoroughly removed. The dura, with a portion of the sigmoid sinus lay exposed in this cavity, but as no symptom of any disease of the latter was present, it was not thought advisable to operate upon it immediately, but to await developments. Tampon of iodoform gauze applied. The temperature remained at 38.5° for the next few days, but the patient felt considerably easier. Without fever on the third day. Dressings first changed on the fourth day; wound somewhat discolored; little pus, but

that offensive; general condition very good. Dressing on sixth day revealed wound quite sweet; small quantity of odorless pus.

The general condition continued normal but the wound showed no inclination to heal. Finally the formation of pus quite ceased and the patient, March 13, was discharged with directions given to report at short intervals for observation. The cavity gradually became covered with a cuticle always dry and easily pulled off. This cuticle consisted mainly of fibrous tissue, epidermis cells and scanty cholesterine crystals, but without true skin tissue. Upon removing this cuticle, the walls were of a dry white color. The sinus wall appeared thickened and bluish. Nowhere was there a trace of suppuration. The enlarged antrum was covered with dry epidermis and the tympanum was still partly covered with red mucous membrane; the Mt. was quite destroyed. The hammer and incus were gone.

It is of the greatest interest that after the operation the hearing of this ear increased extraordinarily; from watch zero by both AC and BC to 45 cm. by AC and from every portion of the skull by BC. G. believes that one can accomplish one's object in small collections of cholesteatoma in the tympanum, and even in the antrum, by removal of the pars epitympanica in the majority of cases; where the cholesteatoma, in greater quantity, involves the mastoid process, the making and maintenance of an opening in the mastoid is urgently advised.

G. does not believe that transplantation of skin as recommended by Siebenmann, is either necessary or judicious. In all cases in which large collections of cholesteatoma have existed in the mastoid, the cavities themselves remain open and the walls are finally covered with epidermis, or the process continues still to form cholesteatomatous masses and transplantations of skin are useless. In every case one should wait until there is some probability of obtaining the hoped for result before trying skin transplantation. In other words, the cases in which such a transplantation is of use are certainly very rare.

II.—(a) A Case of Radical Operation with Especially Favorable and Rapid Course, by Prof. Urbantschitsch.

The anamnesia: Female, 45 years old; right otorrhea since childhood, that began simultaneously with suppurative processes in various places, especially in the extrem-

ities. The ear has now run since summer. Patient complains especially of right headache, dizziness, blackness before the eyes. November 13, 1896, operation. Posterior bony canal wall removed; mastoid antrum opened; attic exposed; removal of ossicles, the incus especially being carious; the tympanum and antrum cleared of granulations and pus, with which they were filled; the cutaneous canal slit in such fashion as to form a flap of soft parts of the superior canal wall, which was transplanted into the antrum and the remaining wound sewed up. Changed dressings in eight days for the first time. In this case, U. attempted to find out whether it was possible, without the pressure treatment usually employed by himself, to bring about a cure without the customary granulations and marked secretion of pus and the result proved satisfactory. At present the cavity is already covered with a beautiful smooth cicatrix and there has been no secretion for three weeks.

(b) A Case with Sub-Dural Abscess.

Male, 38 years old, right otorrhea for six years, together with headache and dizziness which disappeared eight days before operation after extraction of a polypi. Operation November 20, 1896. Mastoid antrum relatively small, was filled with granulations. The dura mater was exposed posteriorly and superiorly and was destroyed over a small spot. The tympanum was also filled with granulations. Both processes of the incus carious and only the head of the malleus remains. November 30, the patient complained of a fearful headache, and upon changing tampon a great quantity of pus flowed out of the uppermost part of the wound in the region of the tegmen tympani, where the dura was pale, whereupon the patient felt easier. As no recess had been left in the wound cavity in which the pus could have collected, it must be accepted that the pus sprung from an abscess in the cerebral cavity external to the dura. U. filled the wound cavity with a 10 per cent. solution of iodoform in glycerine, permitting it to work its way in for ten minutes. This application was repeated every second day for three weeks, the secretion of pus gradually diminishing, and finally ceasing altogether. Simultaneously the general condition of the patient improved, the pain disappearing.

U. reported three cases more, likewise treated for supuration with the iodoform emulsion.

The first case depended upon a tuberculous affection of the right ear with the formation of a dissecting abscess in the pharynx, upon which, if pressure was exercised, a great quantity of pus streamed out of the external auditory canal. U. now emptied the abscess by pressure, then filled the external canal with the emulsion and then by gradual relaxation of the pressure the emulsion was aspirated into the abscess sac. The abscess completely healed but the patient succumbed one month later to vertebral caries.

The second case was that of a dissecting abscess, originating in the mastoid and extending downward along the sheath of the vessels between the carotid and jugular. Treatment with the iodoform emulsion brought about complete healing. One year later the patient was entirely healthy.

The third case was also an abscess; pressure upon the mastoid process evacuated pus behind the niche of the fenestra rotunda. Operation being declined, the iodoform emulsion was used, and brought about complete recovery.

(c) A Case of Shot Wound in the Right Ear.

Male, 54 years old, July 11, 1896, while intoxicated discharged a shot against the right temple. First became conscious in the evening and remarked as the first sensation, that everything turned around him; moreover, a feeling of noise and musical tones on the right side, then great dizziness. Right facial paralysis; hearing completely destroyed. The presence of the projectile in the tympanum could be proven; copious suppuration from the ear. Operation October 23: the shattered projectile lay most firmly wedged against the floor near the anterior wall of the tympanum against the carotid canal, and was with difficulty removed. The promontory was, as in a previous case of U's., pressed in. A sequestrum formed from the posterior wall. The patient is still under treatment.

III.—A Case of Radical Operation with Complications, by Dr. Panzer.

Female, 16 years old. Left-sided otorrhea since childhood; formerly occasional headache, became constant since February, 1896, and involves especially the forehead and temporal region; also dizziness, especially on stooping; blackness before the eyes; everything whirled in a circle; nausea occurred quite frequently, but not so fre-

quently as the headache. Two nights before the operation a brief interval of delirium during sleep.

Operation August 1, 1896: Usual incision laying mastoid bare and loosened attachment of external cartilaginous canal to bone; removed posterior bony canal wall up to the insertion of the Mt. and the pars epitympanica, so that the attic with the ossicles lay exposed. The ossicles were removed; the head of the hammer was especially carious, while the incus only showed slight alterations on its processes, contrary to the usual condition, in which the most marked disease is found on the incus. P. then removed the granulations from the tympanum and opened widely into the mastoid antrum, which likewise was filled with granulations, and whose walls appeared carious. After slitting the cutaneous external canal, the cavity was tamponed with iodoform gauze. Gradually within two days complete facial paralysis developed which persisted from the day of the operation for about two months, and then gradually disappeared. September 10, six weeks after the operation, pain in the auricle appeared and it felt hot, became swollen and red, and developed into a tumor the size of a child's fist, taking in the whole auricle. Temperature up to 39.5. It was a perichondritis of the auricle. Poulting and incisions failed to give relief until a very large, deep incision in the anterior surface of the auricle opened the pus sac and the tumor collapsed, whilst at the same time the pain ceased.

P. tamponed with iodoform gauze, changed every day, and healing took place in six weeks with considerable deformity. Meanwhile the condition of the operative wound improved and went on to complete healing with a firm cicatrix.

IV.—Presentation of a Case of Cholesteatoma of the Middle Ear with Pyemic Symptoms; Cured by Operative Exposure of the Middle Ear Cavity, by Prof. Politzer.

Female, 30 years old. Right otorrhea in childhood; severe pain appeared on November 8th of last year, and discharge from the ear on the following day. Five days later a chill, repeated the next day.

November 22, the external canal was unobstructed, scarcely moist; the partly cicatricial Mt. shows a perforation 3 to 4 mm. in diameter, filled with epithelial masses through which the sound penetrates to the aditus and an-

trum. Mastoid process (W. F.) outwardly normal. Tenderness along the region of the jugular vein. The acoustic tests showed a disturbance of sound conduction. Whisper heard $\frac{3}{4}$ m; loud speech 2 m. The chills were repeated in the evening and the next morning; temperature 40.1.

Operation on the 23d: Cortex outwardly normal, mastoid markedly sclerosed; antrum contained moist cholesteatomatous masses and granulations. Upon chiselling away part of the superior bony canal wall, the dura was exposed to about the size of half a kreuzer; removed the markedly thickened posterior superior bony canal wall; cholesteatoma and granulations in the tympanum; ossicles not found. Cleared out tympanum, including attic, with sharp spoon. Chiselled away bony parts of mastoid overlying the sinus, exposing the distinctly pulsating sinus to the extent of more than $\frac{1}{2}$ cm.; its wall inferiorly was somewhat discolored. Irrigated with creosote solution; split the posterior cartilagino-membranous canal wall up to the concha; adapted both canal flaps to the superior and inferior angles of the wound.

Temperature after operation 36, remaining the same the following day; on the afternoon of the third day the temperature rose to 40.5 and after a chill lasting half an hour coughing and vomiting appeared. A circumscribed capillary bronchitis developed in the inferior pulmonary lobes that disappeared quickly with the cessation of the fever.

Since then, the progress of the wound has been normal, and the general condition very good.

P. is of the opinion that without operation the case would have resulted fatally in a short time through pyemia. Also that only through keeping the wound open in the mastoid is it possible to radically remove the continually renewed cholesteatomatous lamellæ.

Discussion—Gomperz remarked that further experience with the Körner plastic operation had greatly lowered his early enthusiasm for it. Cases, although beautifully healed, reverted after a longer or shorter time, so that crusts and cholesteatomatous masses formed in the region of the antrum, and if not quickly removed, led to renewed suppuration. On the other hand, Gomperz found the newly formed epidermis resulting from the treating of cases with retro-auricular opening from radical operation incomparably more resistant, and believes that the reason for this lies in the constant contact of the newly formed epidermis with

the atmospheric air. As to the cosmetic effect of Körner's plastic operation, Gomperz thinks the greater security from sequelæ counterbalances the cosmetic defect in the retro-auricular opening.

Urbantschitsch withholds his judgment as to the advisability of closing the cavity or not, as the question still remains to be settled.

Gruber was of the opinion that one might permit the cavity to close, with small masses of cholesteatoma, when the prospect exists that one can remove freshly formed masses through the canal; while with larger collections, where the mastoid process is widely excavated, it is always well not to close the operative wound. Moreover, experience teaches that great cavities from cholesteatoma close only with difficulty, and most often remain.

Urbantschitsch has permitted large cavities to close.

V.—Fracture of the Temporal Bone by a Fall Upon the Skull, by Prof. Gruber.

Gruber demonstrated the left temporal bone of a man who fell on the ground in the night time while intoxicated, and hurt the right half of the face, remaining prone in the street all night in a drunken condition. Awaking the next morning with great pain in the head and bleeding from the ear, he came for help to the clinic. He was strongly built, feverless, and the right facial nerve was paralyzed. Bruises on the forehead and right auricle; fluid tinged with blood flowed freely out of the right external canal; after drying, the lumen seems distinctly narrowed; the Mt. could not be seen. The narrowing was caused partly by swelling of the soft parts, and partly by their separation from the bone by blood extravasated from the latter. Valsalva's experiment gives a perforation sound in affected ear. Watch heard on contact; tuning fork C² shortened by AC, lengthened by BC; Weber positive; 100 gm. of the discharged fluid was collected in three hours; it was found to be cerebro-spinal fluid upon chemical investigation. Antiphlogistic treatment. A severe chill the next day with vomiting, and he became somnolent; paralysis of the right oculo-motor nerve, with otherwise normal ophthalmometric conditions appeared. Severe, furious delirium with great restlessness developed, and two days later the patient died.

Autopsy—Extensive purulent meningitis; the dura over

the superior posterior surfaces of the right temporal bone is lifted off by extravasated blood, partly coagulated; the fractural fissure begins very imperceptibly on the under third of the squama, where it penetrates the superior wall of the external canal, passes over upon the upper surface of the petrous portion where a second fissure branches off from it, forming a four-cornered piece out of the tegmen tympani, 1.5 cm. long by 5 mm. broad, that is connected with the rest of the bone, only posteriorly and externally. The main fissure then runs toward the apex of the petrous portion, completely penetrating the anterior segment, and then runs through the inferior wall of the bony external canal. The Mt. shows an arched rent, 6 mm. long, surrounding the end of the hammer. The tympanum was filled with blood.

VI.—Demonstration of Rare Anatomical Variations in the External Auditory Canal, by Prof. Politzer.

In the first preparation the jugular fossa is greatly widened, with an oval, sharply limited dehiscence, $3\frac{1}{2}$ cm. by $2\frac{1}{2}$ cm.. between its posterior wall and the inferior segment of the Fallopian canal. The facial nerve lies free throughout the length of the dehiscence, and is only covered by the bulbus jugularis. The pathological significance exists only in the fact that in a septic phlebitis of the vena bulbus jugularis, the inflammation could extend to the neurilemma of the facial, and so the clinical picture be complicated by a facial paralysis.

The second preparation presents an anomaly that P. had never before observed. This anomaly consists in a relatively greatly developed connective tissue cord which originates on the manubrium near to the point of attachment of the tensor tendon, and passing from thence obliquely inwardly and posteriorly is inserted by a fan-shaped termination to the incudo-stapedial joint. This is especially noteworthy, because the m. tensor tympani and the m. stapedius are antagonistic. The markedly developed tendinous band must, therefore, taking the character of its insertion into consideration, by isolated or combined contraction of the before mentioned muscles, bring about a reciprocal checking.

VII.—Several Preparations From Animals, by Dr. Ferdinand Alt.

Hemorrhages were experimentally produced in the mid-

dle ear, in the cochlea, and in the semi-circular canals of rabbits, guinea-pigs and dogs. They were exposed to a pressure of four atmospheres in a pneumatic cabinet. Further particulars will appear in a forthcoming monograph.

VIII —Cotton Tampons.

Dr. Victor Hammerschlag demonstrated an apparatus designed by himself, for the making and preservation of sterilized cotton tampons.

The apparatus consists of a glass receptacle with tightly closing metallic lid. Within is a nicked stand to receive one hundred small glass tubes. Each tube is about 5 cm. long, 3 to 3.5 mm. in diameter, melted off on both ends. The cotton is rolled in the usual way upon the end of the tube, with well cleaned hands, the pledget projecting sufficiently far beyond the glass tube, to be easily grasped with the forceps. After all the tubes are thus prepared, the glass receptacle is placed in a dry sterilizing oven, such as exists at present in every surgical clinic. By the next day, the pledgets are absolutely free from germs, and can be used. These sterilized pledgets are to be used not only in cleansing out the external canal before a great operation, as heretofore customary, but also in wiping up the secretion in acute purulent processes of the middle ear, in order that no pathogenic organisms are introduced through the treatment directly into the pus collections, as certainly happens in many cases by the use of instruments and pledgets not sufficiently sterilized. Such an apparatus is already in use in Politzer's and Gruber's clinics. The apparatus is for sale by Castagna for 7 fl.

SESSION, MARCH 9, 1897.

Ferdinand Alt presented a workman, 57 years old, attacked two months previously with bilateral acute otitis media purulenta, resulting after a month in otitis of the left mastoid and dissecting cervical abscess of same side. Finally, four days ago, entered Gruber's clinic. Examination on admission: Greatly emaciated, sub-icteric, temp. 39.3°, pulse 120, internal organs normal, no disturbance of the cerebral nerves. Right canal patent, Mt. slightly congested. Left canal, posterior-superior wall projects inwardly; no otorrhea; Mt. congested, swollen, unperforated, details obscure. Mastoid, soft parts swollen, reddened,

tense, very tender; swelling extending up to middle line of occiput and down to middle of left side of neck. Patient too weak for functional testing. Temp. that p. m. 40.3°, chill lasting a quarter of an hour, and Alt immediately operated. Operation discovered a fistulous opening in the mastoid apex; antrum opened and diseased tissues cleared away. The swollen soft structures posteriorly and inferiorly were found infiltrated with pus, and were thoroughly explored until the finger was able to feel in the depth of the wound the transverse process of the cervical vertebra. Since the operation the patient has been free from fever and in good condition.

Discussion.—Gruber pointed out that dissecting cervical abscesses heal very kindly, if properly treated according to correct surgical principles.

Exudation in the Tympanum From Mechanical Compression of the Eustachian Tube, by Politzer.

Demonstrated an aural preparation, in which a carcinoma of the soft palate, involving also the base of the skull and its contents, grew on all sides of the eustachian tube, completely obstructing its lumen. In consequence of this compression, exudation of a viscid, tenacious, transparent mucus occurred, completely filling the tympanum. Microscopical section through the eustachian tube shows the interesting fact that the new growth extends well up to the tubal cartilage, without, however, penetrating into the substance of the cartilage. P. points out that aural disturbances often occur in malignant new growths on the base of the skull, but, because of the severity of the local disease, are mostly overlooked. He has observed four cases similar to the above.

Symmetrical Congenital Malformation of Both Auricles.

Demonstration by D. Kaufmann.

Male, 17 years old, O. M. P. residuosa on right side, otherwise normal, shows in both auricles symmetrical oval defects, $2\frac{1}{2}$ mm. broad by 2 mm. long by 7 mm. deep, with sharply defined edges, in the fossa between the ascending portion of the helix and the inferior portion of the anti-helix, that might be attributed to an arrest of development in the embryonic stage.

II.—Two Preparations of Fatal Otitic Pyemia.

(a) Osteo-phlebitic pyemia. Man, 43 years old, O. M.

P. C. for many months, attacked early in September, 1896, with chill, fever, right otalgia. Came to clinic in the middle of September with high fever, icterus, apparently no metastases of the internal organs. Right canal patent, pus, Mt. perforated anteriorly and inferiorly, mastoid normal externally, except for tenderness over apex. Operation: Bone softened, many small osseous veins filled with pus, fluid blood in sinus (the aspirated blood from sinus contained numerous streptococci). K., in agreement with views held by Brieger, decided against the ligation of the jugular vein.

Death three days after the operation. The autopsy showed metastatic abscesses in the muscles (right upper extremity), analogous to the symptoms of pyemia, in consequence of osteo-phlebitis, as pointed out by Körner, whereas no abscesses existed in the lungs.

(b) Pyemia from thrombo-phlebitis of the transverse sinus. Girl, 14 years old, O. M. P. C. for one year, attacked toward end of September with chills and severe general symptoms. Canal filled with thick, highly offensive pus, so narrowed as to prevent inspection of the middle ear. Mastoid soft parts normal externally. Operation: Mastoid process sclerosed; offensive purulent and cholesteatomatous masses in antrum, attic and tympanum; ossicles not discoverable; sinus wall thickened and discolored and sinus filled with an adherent thrombus. Operation was followed by high fever, without chills, and death six days afterward.

Diagnosis at autopsy: Pyemia from ichorous thrombo-phlebitis of the left sigmoid sinus, following right otitis media purulenta chronica, with multiple pulmonary abscesses combined with left suppurative pleuritis. Parenchymatous degeneration of the viscera. Edema cerebri.

Rare Case of Epithelioma of the External Auditory Canal.

Gruber demonstrated the following cases:

Man, 63 years old, poorly built and moderately nourished, complained of hardness of hearing in left ear December, 1896. Due to middle ear catarrh and cured by air douche. During examination a warty growth, the size of a pea, was discovered on the cartilaginous external canal of the right side; caused no embarrassment and was unknown to patient. Patient would not consent to its removal. March 9, 1897, growth had increased to the size of

a large hazel-nut, occluding completely the external canal; it is globular, the broad base being inserted into the anterior wall; covered by dark brownish skin, with irregular surface; it is not tender to touch, yet patient suffers from periodical pains in the diseased ear. There is a swollen lymphatic gland in the fossa mastoideo-mandibularis. Though a view of the Mt. was not obtainable, yet, from corroborative evidence, the middle ear structures were regarded as being practically normal. From the above data the diagnosis of epithelioma was made and operative removal recommended.

Discussion.—Bing reported a similar case, in which the wound surface quickly cicatrized after surgical removal.

II.—Rare Lipoma of Auricle.

A new growth on the middle third of the fossa navicularis, involving this and the contiguous anti-helix, [of the right auricle of a young girl. It penetrated the cartilage and appeared on both surfaces of the auricle as a globular tumor, 2 cm. broad by 1.3 cm. high; it is covered with normal skin, doughy to touch, and lobulated on that portion appearing on the posterior auricular surface. Diagnosed as lipoma and was not operated upon.

III.—Serosus Cyst, the Size of a Walnut, in the Region of the Pharyngeal Mouth of the Right Eustachian Tube.

A man, 45 years old, tuberculous, complained of deafness and subjective aural sensations in right ear. Examination: Mt. moderately retracted; naso-pharyngeal mucous membrane markedly swollen, especially on right side, and pale. Air could not be forced into the right ear by any method of inflation, though easily gaining entrance to the left. The catheter, introduced on the right side, impinged upon a soft, elastic tumor occupying the whole right half of the pharynx and rendering rotation of the catheter into the tube mouth impossible. Even on introduction through the left side, it was found impossible to force air through the right tube. Posterior rhinoscopy was impossible, but the finger discovered the soft, highly elastic tumor. No trace of the cartilage of the Eustachian tube could be discovered. On the second day after the examination the patient succumbed to his principal complaint. On the specimen is found a cyst the size of a walnut in the region of the pharyngeal mouth of the Eustach-

ian tube; the walls are thin and the contents very fluid. The cyst occupies the whole of Rosenmüller's groove and extends under and toward the anterior wall of tube. It projected nearly to the middle line of the pharynx and occludes a large part of the right choana. The pharyngeal tubal orifice is almost, if not quite, occluded by the growth even in the spirit preparation; the symptoms present in life are therefore sufficiently explained.

IV.—Cyst in the External Auditory Canal.

Gruber operated in July, 1896, upon a 53-year-old priest for a sero-mucus cyst upon the anterior wall of canal. The cyst occluded the whole canal and induced deafness and tinnitus; it was of rapid growth and highly elastic. The cyst was emptied by a cruciform incision, curetted, and tamponed with gauze.

Casuistic Communications, by Ferdinand Alt.

(1) *Alcoholic Auditory Neuritis*. Laborer, 37 years old, addicted to drink; for many weeks had had tremor, paresis and pain in the arms and legs; ocular and auditory disturbances for eight days; ophthalmic examination shows chronic retrobulb. optic neuritis from abuse of alcohol. Aural condition: Both Mt. normal; watch left 17 cm., right 11 cm.; whisper left $\frac{3}{4}$ m., right $\frac{1}{2}$ m.; loud speech, both 4 m.; c² t. f. applied to vertex was heard as there; Rinné, both sides, positive with -BC; c and c¹ were well, c³ and c⁴ only perceived when strongly struck. No alteration after catheterization and penetration of air.

All the above makes it plausible that the ear affection consisted in an alcoholic neuritis of the auditory nerve.

Alt recommends examination of the fundus oculi in every case of supposed disease of the labyrinth. The ophthalmic condition might be of value in many cases as an indication for the diagnosis.

(2) *Artificial Perforation of the Mt. in Otitis Media Plastica*. All authors unite as to the advisability of the attempt to form an artificial, persistent perforation of the Mt. in catarrhal adhesive processes of the middle ear, combined with unendurable subjective annoyances. In the author's case, a persistent opening, an improvement of the hearing and a mitigation of the existing subjective annoyances were obtained. Following an injection of air, a traumatic rupture of the right Mt. accidentally occurred, joined to a

slight otorrhea caused by the continued treatment with vaseline injections; simultaneously the tinnitus disappeared. A curved incision was now executed on the left Mt. and liquid vaseline injected through the Eustachian tube; the next day a slight otorrhea appeared (the pus of which contained no pathological micro-organisms, but did contain an undescribed form of short rods, not pathogenic for rabbits and mice.—O. Lindenthal). The slight otorrhea caused the patient no embarrassment, and ceased instantly when the vaseline injections were discontinued. After treatment lasting four weeks a persistent perforation remained in the Mt. and the tinnitus had completely disappeared on the right side and become very mild on the left. The hearing increased on the right from 30 cm. to 1½ m., on the left to 30 cm. for conversation; whereas formerly the patient could understand only words loudly called close to the ear.

(3) *Experience in Forty Cases with Trichloroacetic Acid in Regard to Closing Perforations in the Mt.* He considered as proper for treatment with trichloroacetic acid every case of dry perforation of the Mt., with the exception of perforations in Schrapnell's membrane, those situated in the superior-posterior quadrant, and complete destruction of the Mt. Unlike Okuneff and Gomperz, he did not use the melted crystal, but a concentrated solution. In large perforations he cauterized every four days; in small ones once a week. During the treatment the air douche was discontinued. Harmless suppuration appeared only twice. In most cases accumulations of rapidly drying secretion appeared, which is always to be removed carefully with the forceps.

Discussion.—Gomperz does not agree with Alt, who states that a certain result is to be expected in all cases. Unfortunately many cases do not react at all after the cauterizations. Neither the site nor size of the perforations, nor the age of the patient, determines the result. The patient should never be led to expect as a certainty, therefore, the cicatrization of the perforation. Frequently, after a number of cauterizations, progress ceases, and then, after a further cauterization, the cicatrization rapidly regresses; this appears most rapidly if the cauterization is followed by severe inflammation. Gomperz has succeeded in obtaining cicatrization in almost complete destruction of the Mt.

Gomperz has obtained similar brilliant results in regard to the hearing in cases in which adhesions existed between the edges of the perforation and the internal tympanic wall; he divided the adhesions and cauterized the perforation. The growing together of the divided synechiæ is prevented by the resulting reaction and the rapid diminution in size of the perforation.

Prof. Gruber is convinced that large perforations in the Mt. can cicatrize, but that no difference can be perceived, in the large cicatrices mentioned by Gomperz, between the new-formed and the remains of the old tissue he doubts, as it is known, according to the experience of all aurists before Gomperz, that a reformation of the destroyed membrana propria of the Mt. does not take place.

Gomperz referred to his published account (*Monat. f. Ohren.*, 1892, No. 4), of a tympanic membrane cicatrix, in which the substantia propria had been plainly regenerated. The possibility of such a regeneration seems so much the less questionable as perforations, after purulent inflammations, frequently heal without leaving a trace behind on the Mt.

* * *

Dr. Bing presented an aural concretion from a case of chronic otorrhea, the size of a bean, and possibly consisting of hardened, mortar-like, inspissated (calcified), retention masses—perhaps around a cotton pledget as a kernel.

Prof. Gruber presented the photographic print of a temporal bone made by the Röntgen rays.

At the February meeting G. demonstrated a rare fracture of the temporal. An X-ray photograph was made of the specimen. In the region of the mastoid process is shown a design which created the presumption that it marks the mastoid cells and other pneumatic cavities on the photograph. It consists of circumscribed white patches, corresponding fairly well with cells in the mastoid specimen as they appeared after the process had been sawn through. The process is worthy of further study, with a view to determining by this method the condition of the mastoid cells.

PROCEEDINGS OF THE FRENCH OTOLOGICAL,
RHINOLOGICAL AND LARYNGOLOG-
ICAL SOCIETY MEETING OF
MAY 3, 1897.

(Translated from the *Annales des mal. de l'oreille*, June, 1897, by
H. A. Alderton, Brooklyn.)

**Results of Permanent Artificial Perforation of the Mt., by
Miot.**

The author draws attention to the good effects of permanent artificial perforation of the drum-membrane in certain cases of dry otitis media. Among fourteen cases operated upon with success during the past year, he cites the case of a young man with deafness, who, having obtained no results with four different treatments, found his hearing markedly improved after the ablation of the tympanic membrane on one side and the ablation of the tympanic membrane and the malleus on the other.

Discussion.—Helme: "I wish to ask if M. Miot operates when bone conduction is reduced to zero?"

Miot: "No; nothing should be attempted when the labyrinthine perception is gone, or where there is ankylosis of the stapes."

Surgical Treatment of Dry Otitis Media, by Mounier.

After passing in review the divers operations practiced to ameliorate deafness and tinnitus, the author returns to ablation of the tympanic membrane and the two large ossicles.

He favors a partial resection of the posterior-superior wall of the canal in order to see the stapes better and disengage it.

He proposes to practice this bony resection *through the canal* without previous detachment of the auricle, thus causing very little traumatism. He presents for this purpose a very simple instrument called *protecteur-gouge* (protected chisel).

After explaining the technique of this operation, he gives some indications for a rapid method of removing the malleus and incus.

He does not promise an amelioration of hearing in the

sclerous case, in which the Rinné becomes positive after perforation of the tympanic membrane after having been negative before.

He recommends chromic acid for the purpose of performing rapidly, and without pain, the exploratory paracentesis. He insists upon the importance of the subsequent dressings, upon which often depends the result of the operation.

The hearing improves, for the speaking voice, in the proportion of 1 to 5; the tinnitus ceases completely in some patients, in others diminishes notably.

Discussion.—Miot: "As sequelæ, do not cicatrices eventually mask the stapes?"

Mounier: "There is, indeed, a tendency to the formation of cicatricial bands between the superior wall of the canal and the tympanum. This cicatrization is controlled by chemical caustics, principally crystalized chromic acid."

Gellé: "I find Mounier's protector very light; the bone of the attic (logette?) is very variable in thickness, and I have had a much stronger protector made. Does not Mounier fear wounding the facial?"

Mounier: "I use the protector at the same time to prevent accidents."

Mastoid Osteo-Periostitis Following Otitis Media, by Bonain.

In six cases that he reports, Bonain has always found lesions of the internal wall of the mastoid. He advises, therefore, in view of the complications which might lead to its involvement, the exploration and laying bare of the sinus, if the lesions encountered do not sufficiently account for the symptoms observed.

Report Upon the Medico-Legal Aspect of Affections of the Ear, Nose and Throat, and Their Adnexa, by Castex.

The author reviews his work in the following conclusions:

Ear. It is important to establish an acoumetric unity, not without taking account of transitory fatigues and simulated deafnesses.

Certain anomalies incur responsibilities in surgical operations (notably in relation to the facial nerve). The same, with incomplete operations (Wilde's incision), or septic operations (piercing the lobule by jewelers).

Osseous concussions rupture the tympanic membrane at

the periphery; on the contrary, aerial concussions rupture it toward the center (Corradi). Traumatic perforations are characterized by their ecchymotic edges (Politzer).

The business of diving should be interdicted in men having tubular obstruction or atrophy of the membrane (Koch).

Traumatic neuroses may be complicated by deafness, or hyperacousis, with tinnitus in both cases. These disturbances are temporary in general. Syphilitic contaminations from medical examinations are rare.

In men who have been hanged rupture of the membrane is found, ecchymoses or hemorrhages in the tympanum and the auditory canal. The lesions may serve to prove that the subject has been hanged alive (Lannois). Dynamite explosions determine, in the ear, tympanic ruptures, especially from behind, or tinnitus and vertigo, when the victim is near the explosive (Verdos, Castex).

In infanticide, the finding of air or amniotic fluid in the tympanum proves that the child has breathed (Wreden's sign).

In active railway service there has been occasion to diminish the acuteness of certain signals (Grazzi). The petard is the most useful of all. Only firemen and mechanics should be admitted who have almost normal hearing and hear whispering at one meter at least (Zwaardemaker).

For telephone service, hearing of whispering at four meters is necessary (Zwaardemaker).

In life insurance chronic otorrhea and Ménière's disease are the only ones which render the risk unacceptable. In accident insurance pre-existent tympanic sclerosis often exonerates the assurer.

The deaf-mute in France, since the Revolution, serves in all civil capacities.

For military service, those with curable affections are declared liable; and, as unsuitable applicants, are those who hear neither the voice nor the tuning-fork; deaf-mutes are exempt.

Three Cases of Intra-cranial Complications of Otitic Origin, by Moure.

Case 1. Child, 5 years old, acute suppurative otitis media, fever, and slight edema over mastoid. Incision evacuated pus, and discovered osseous lesion toward the

cranial cavity, above the lateral sinus. The cranial cavity was opened with the escape of considerable pus, the dura being covered with granulations and the meninges inflamed over a surface 3 cm. by 2 cm. The wound was carefully curetted and well drained, the patient recovering without any complication.

Case 2. Woman, pregnant, exhibiting symptoms of mental alienation, suggesting either uremia or psychic disturbance of puerperal origin, was therefore prematurely delivered. The symptoms persisting and the right ear suppurating, M. was called. He concluded there were intra-cranial lesions of otitic origin, and proposed operation. The mastoid cavity and the tympanum, filled with granulations and pus, were curetted and sponged with zinc chloride solution. Pus and granulations were found in the middle cerebral fossa; symptoms of localized meningitis. The operation was then concluded and further interference decided upon if the symptoms persisted. Patient succumbed forty-eight hours after. Autopsy: Large cerebral abscess, the size of a hen's egg, which had destroyed all the temporo-sphenoidal lobe and opened into the ventricle. The abscess was not encysted. The latency of the phenomena and the puerperal condition rendered all diagnosis difficult.

Case 3. Child, 30 months old; following measles an O. M. P. A. developed, which seemingly healed, but left fever with chills. M. at first pronounced it a simple bulging of the Mt., which was not perforated. Paracentesis evacuated pus. Forty-eight hours afterward, the general symptoms not improving, the antrum and tympanum were widely opened and curetted. They contained granulations and pus. The pyemic phenomena persisting, M. suspected a phlebitis of the lateral sinus and proposed a third operation, which was unhappily postponed by the family. Called to intervene when the situation was much more grave and the general conditions bad, he opened the lateral sinus, from which was evacuated pus. It was drained, but the child succumbed thirty-six hours after.

Moure agrees with Wheeler and Broca as to the necessity of operating by way of the ear, whose lesions often lead the operator toward the parts of the cranium affected through the otitic disturbances.

Contribution to the Study of Auricular Affection in Gout,
by Gellé.

1. The gouty, or those of gouty parentage, seem pre-

disposed to otitic affections. Hereditary gout affects the ear from early infancy (eczema, external otitis, otorrhea).

2. In acute gouty otitis the Mt. is congested over a sector comprised between the two ligaments, anterior and posterior. The redness extends to the wall of the attic. It has, on the whole, the aspect of an inflammation of the attic. The congestion is localized in the attic and the ossicular chain, which it immobilizes.

Aside from acute formations, we note calcareous deposits infiltrating the membrane; the thickened manubrium terminates by a large spatule.

The beginning, often sudden, is generally preceded by a pharyngitis, either uni- or bi-lateral; edematous pharyngitis, characterized by that special aspect we designate "false pillars." This may terminate in suppuration, or in sudden cessation of all the symptoms.

3. Otitic disturbances (deafness, vertigo, tinnitus), sometimes announce an attack of gout, or of another manifestation of the arthritic diathesis (hepatic colic very often), to cease suddenly on the appearance of new developments.

4. The author, while not denying the existence of gouty vertigo, is doubtful about the site of the causative influence. Because, if the ears of the gouty subject, afflicted with vertigo, are examined with care, old or advanced lesions are nearly always found, alone sufficient to account for the vertigo. Gouty vertigo, then, will only be vertigo *ab aure laesa*. In reading the descriptions given by classic authors of gouty vertigo, we find that it resembles the description of labyrinthin vertigo.

Discussion.—Helme: "What does Gellé think of the treatment by salicylate of soda?"

Gellé, Jr.: "It has given good results; it prevents the access of gout."

Gellé: "Salicylate of soda, which is reported to cause cerebral symptoms, tinnitus and vertigo, gives, however, good results."

Notes Upon the Various Lesions of the Ear, Nose and Throat Found in Children in Deaf-Mute Institutions. Importance of Their Treatment. By Hamon du Fougeray.

The writer carefully examined the condition of the nose, pharynx and ears of the children in an institution for deaf-mutes.

Of forty-five children, twenty-five were totally deaf; twenty-two had different degrees of hearing.

The cause of deafness is almost always difficult to determine, because of incompleteness of certificates and examination on admission.

The examination of the twenty-two not completely deaf shows: Lesions of the internal ear, eight; lesions of the middle ear alone, fourteen. Of the children affected with otitis media only: O. M. C. C. in twelve; O. M. P. residua in two; tubal obstruction in six.

The nasal lesions were: Hypertrophic rhinitis, ten; hypertrophic rhinitis, with deviations, crests and spurs, four; adenoid vegetations, six; hypertrophied tonsils in three.

The treatment was thus divided: Operations: Adenoids and tonsils, six; cauterization of the turbinates, bougieing, air-douche, fourteen.

The indications for treatment are three in number:

1. To suppress all obstacles to nasal respiration.
2. To treat all conditions which may prevent the articulation of words.

To try to improve audition.

To learn to speak, the deaf mute should have *normal respiration*. Nothing should hinder articulation. Finally improvement, however slight in the hearing, renders great service to deaf mutes.

The results obtained by the author in six months are:

For respiration, 6 treated, 6 cured.

For articulation, 6 treated, clear speech, 2; improvement, 4.

3. For audition, 14 treated, 13 ameliorations.

It is to be wished that all institutions might have a specialist exclusively for the pupils, in the interest of young deaf mutes hitherto completely neglected.

Mon- and Bin-Auricular Perception of the Direction of Sound, by Augiéras.

Mon- and bin-auricular audition may both give the idea of the direction of sound. It depends upon the measure of assistance from the muscular sense of the angle of orientation. This angle is measured by the rotary movement that the head accomplishes to bring it into the direction of the sounding object, considering the axis of the good ear in mon-auricular orientation and the median antero-posterior plane of the observer in bin-auricular orientation.

Mon-auricular orientation has the disadvantage of being possible only for sounds of a duration easily appreciable; it is possible, therefore, by teaching a subject who has rapidly become deaf in one ear, to utilize mon-auricular orientation, to avoid the prolonged fatigue of the paracusis.

Contribution to the Study of Intra-Cranial Complications Occurring in the Course of Suppurations in the Neighborhood of the Cranium, by Luc.

Reports three operative cases of cerebral abscess; two of the right frontal lobe following empyema of the frontal sinus, and one of the right temporo-sphenoidal lobe following otorrhea. Two fatal; one recovered.

In the last case, the cerebral abscess was preceded by a suppurative meningitis, which was completely checked by early opening of the cranium and washing of the pia-mater; and it appears incontestable that the author has performed a duty in recognizing that its development was due by punctures made by him at the first operation into the frontal lobe, through the infected pia-mater.

The author comments upon the extraordinary latency of cerebral abscess. He cites his two last operative cases, which presented the most normal physical condition, while one carried in his sphenoidal lobe a suppurating cavity of 20 cm. capacity and the right frontal lobe of the other was perforated by a suppurating fistula reaching 10 cm. from the surface.

In contrast to this latency of abscess are the terrifying symptoms which may result from a simple infection of the external surface of the dura mater; and two cases are cited where it sufficed to denude and cleanse this membrane to cause disappearance, as if by enchantment, in one case of symptoms simulating the beginning of meningitis in the course of an acute otitis, in the other case a serious eclamptiform and comatose attack, occurring five days after a petro-mastoid evacuation.

M. Luc insists upon the difficulties of diagnosis, sometimes insurmountable, between sub-dural abscess, meningitis, and cerebral abscess. This problem is only solved, in his opinion, by exploratory operation, consisting of a search for pus by a series of incisions through the dura, the pia-mater, and the cerebral tissue. If pus is met with in one of the first incisions, one is only authorized to proceed further in case of grave symptoms persisting for

twenty-four hours at least. It is upon this principle that the author absolutely condemns the practice of puncturing the brain through the intact dura mater.

Discussion—Lermoyez: "If we trephine, in the case of otitic cerebral troubles, and come upon a sub-dural abscess, we drain it, and then the question of puncturing the brain arises. We find ourselves in the presence of the following dilemma: If we puncture the brain and find no abscess, we run the risk of provoking complications (*e. g.*, a cerebral abscess and death); if we abstain and the patient should have a latent abscess, he dies. Could we not with the thermo-cautery produce an aseptic eschar of the dura mater, and then make a cerebral puncture?"

Luc: "In response to M. Lermoyez, I would say that if we find a sub-dural abscess, it is preferable to await developments. If in twenty-four to forty-eight hours the conditions continue, one should proceed further."

Dundas Grant: "I believe that hypothermia is of great value in the diagnosis of cerebral abscess."

Luc: "I have never observed hypothermia, but apyrexia."

BOOK NOTICES.

Atlas and Outlines of Laryngology.

L. Grünwald in München. (*Atlas und Grundriss der Kehlkopfkrankheiten.* Verlag v. J. F. Lehmann, München, 1897.)

This work is published in octavo form and contains 100 pages of text with 44 beautifully executed colored plates, of which 32 are illustrations of the larynx, and 12 are microscopic. Altogether there are 107 colored illustrations. Besides these, there are 25 black and white cuts in the text and in addition each plate is accompanied by several pages of descriptive and explanatory text, giving the case history, treatment, and progress of the disease. The illustrations have been made from life and are beautifully reproduced on a matted paper, giving a decidedly life-like appearance. On the whole, this is the most satisfactory atlas of laryngology that has come to the reviewer's notice, who has had personal experience with this class of illustrations, having himself illustrated other laryngologic atlases.

The text is fully up to date. Kirstein's method of direct laryngoscopy is claimed to have the advantage of showing the posterior wall of the larynx better than with the mirror, and that the presence of mucus does not hinder the view, as there is no mirror to be soiled, which is quite an advantage in the case of children and during narcosis.

The book is well worth possessing even by those who are unacquainted with the German language. It is to be hoped that a translation may be made.

H. V. WURDEMANN.

Atlas of the Membrana Tympani.

POLITZER, ADAM, in Wein. (*Atlas der Beleuchtungsbilder des Trommelfells im gesunden und Kranken Zustande für praktische Aerzte und Studierende*), mit 392 chromolithographirten Trommelfellsbildern und 67 im Text. Verlag von Wilhelm Braumüller. Wien und Leipzig, 1896.

In 1865, Dr. Politzer published his monograph on the drum head, which contained two plates with 24 chromo-lithograph pictures of the drum membrane by Carl Heitzmann. The edition was at once exhausted, and at the solicitation of his students he has now given us the most complete work upon the tympanic membrane extant, in text as well as in illustration. Not content with producing a simple atlas, the morphology, pathologic anatomy, methods of examination and pathology, are described under the following headings: Hyperemia and Hemorrhage, Primary Inflammation, Appearances in Middle Ear of Catarrh, Acute Inflammation of the Middle Ear, Acute Suppuration, Chronic Inflammation, Diseases of the Attic and Cholesteatoma. A most complete bibliography follows. The originals of the 392 exquisitely printed chromo-lithographs were drawn by Prof. Politzer himself from actual cases, the clinic history of each case being appended. The reviewer would comment not only upon

the artistic merits of these illustrations, but upon their pathologic fidelity, as he has seen not only the original beautiful drawings, but some of the actual cases from which they were made, and can thus speak from personal observation. This master of otiatrics is, fortunately for the profession, a skilled aquarel painter, and the fruits of a life time of labor have here been perpetuated. This work well supplements his text book and will surely be appreciated by all who may see it. The price is but 20 marks (\$5.00.) It should be in the hands of every practitioner.

H. V. WURDEMAN.

Illustrations of Ordinary Diseases of the Ear.

STEUER, ALFRED, in Kraukau. (*Die häufigsten Ohrenkrankheiten im Bilde.*) Medicinische Bibliothek für prpktische Aertze. Verlag von C. G. Naumann, Leipzig, 1895.

This little book contains 8 plates and 30 illustrations of the membrana tympani, 3 illustrations of diseases of the canal on one plate and 4 of the external ear on two plates, together with 63 pages of illustrative text. The illustrations are from cases in Dr. Haas' ear department of the Garrison Hospital in Kraukau. It is not intended to take the place of any text book, but as its title reads, the author endeavors to depict the more common ear diseases. The colored plates are three to four times the natural size, but do not bear criticism well when considered along side of the beautiful illustrations of Politzer. The illustrations of the normal drum head and those of catarrhal conditions are especially poor. The text is much better, and the illustrations therein are of natural size and better quality.

H. V. WURDEMAN.

JACOBSON, DR. L., Berlin, Zweite Auflage. (*Lehrbuch der Ohrenheilkunde.* Verlag von Georg Thieme, Leipzig, 1897.)

The demand for a second edition in so short a time of a text book of otology, is an almost unprecedented event of late years. Although the work is intended for both specialists and general practitioners, the latter of whom may omit the passages marked by somewhat smaller type as of less importance, it seems probable that it met with favor mainly in the eyes of co-workers on the special field. The judicial mind of the author, combined with his constant desire to be concise and clear in his statements, enables him to an extraordinary degree to show the present status of otology. He communicates the results of his own observations made for more than fifteen years on the great material of the Berlin University Ear Clinic, while giving credit wherever it may seem due, even in quite minor points. In passing carefully over the value of the tuning fork tests for hearing, the author unfortunately feels justified in arriving at this discouraging view: "For all these reasons, we may not, in differentiating diseases between the sound-conducting and of the sound-perceiving apparatus, consider the results of these tests as offering us *conclusive* evidence in regard to the seat of the disease." The names of authors quoted are arranged in alphabetical order at the end of the book, with the necessary data referring to the original articles.

The chapters on mastoid operations, on otitic diseases of the brain, meninges and sinuses, as well as on otitic pyema and septi-

emia, have been subjected to a thorough revision. The "radical operation" with its various modifications, and the after-treatment, which is so often under rated, are clearly and accurately described. Twelve pages are surrendered to diseases of the nose, pharynx and naso-pharynx, barely enough to lay stress upon the intimate relations between these regions and the hearing apparatus.

The book itself is a handsome volume of some 500 large octavo pages, excellently printed. On nineteen plates more than 300 illustrations are presented; some devoted to anatomy, some to gross and microscopic pathology, others to the methods of operations, still others to instruments and their application. While a few of the last could be omitted without decreasing the value and dignity of this well-balanced work, we, on this side of the ocean, feel constrained to acknowledge the author's forbearance, for we do not encounter a crowning picture entitled "the author operating for mastoiditis, etc."

MORGENTHAU.

INDEX TO VOLUME VI.

ORIGINAL COMMUNICATIONS.

- A CASE of laryngectomy with specimen, 418.
A case of perichondritis of the thyroid cartilage, 155.
A new chronic acid applicator, 422.
A new method for the relief of nasal stenosis, 423.
A new nebulizing device, 158.
A study of three hundred and fifty cases of ear diseases, 56.
Adenoid growths in deaf mutes; together with some observations on the etiology of deaf-mutism, 398.
Adenoid vegetations, 166.
Angio-neurotic edema and certain vasomotor and trophic disturbances of the mucous membrane of the respiratory tract, 425.
CASE of suppurating mastoiditis without involvement of the middle ear, simulating disease of the lateral sinus and jugular vein, 239.
Contribution to the etiology of pulmonary tuberculosis, 1.
Croupous rhinitis, 249.
DISEASES of the glosso-epiglottic spaces, 162.
Diseases of the labyrinth, 173.
EARLY operations for the closure of cleft palate, 39.
Empyema of the maxillary, ethmoidal and sphenoidal sinuses, attended by general septicemia following attempted removal of inferior turbinal body; operations, recovery; 259.
ON OSTEOMATA of the auditory canal, 52.
PYOGENIC brain disease, 43.
REPORT of a case of acute uvulitis, 417.
Report of a case of double mastoid disease, followed by abscess of the sphenomaxillary fossa and neck; recovery; 151.
THOROUGH exposure of the tympanum, 391.
Thrombosis of the petrosal, cavernous and circular sinuses occurring in scarlet fever and due to acute suppurative otitis media, 37.
Toxic paralysis of the chorda tympani nerve in middle ear operations, from the use of a strong cocaine solution, 55.
Transillumination in diseases of the nose, throat and ear, 129.
Two cases of opening of the lateral sinus for infective thrombosis, with a table of operations performed previous to 1897, 381.

ABSTRACTS.

I.—EAR.

- ABSCCESS**, a case of cerebral, 200.
Acute purulent otitis media complicated, 198.
Acute suppurative inflammation of the middle ear, 266.
Acute suppuration of the middle ear, 78.
Acute suppuration of the middle ear and its treatment, 458.
Affections of the ear a bar to military service, 438.
Air in the external auditory canal, 195.
Alveolar sarcoma of the cerebellum, 86.
Auditory hallucinations, 454.
Aural complications in mumps, 192.
Aural cysts, 441.
Aural and nasal hemorrhages in Bright's disease, 76.
BATHING as a cause of aural disease, 267.
Bezold's mastoiditis with pyemic symptoms, 445.
Bilateral otitis media purulenta acuta; thrombosis of left lateral sinus, 459.
CAN YOU cure deafness caused by "catarrh"? a reply, 180.
Carotid canal in practical otology, 183.
Cerebellar abscess, 194.
Cerebellar abscess after acute otitis media, 61.
Cerebral suppuration caused by middle ear infection, 434.
Cholesteatoma of the right middle ear; death, 191.
Cholesteatoma and cholesteatoid affections in temporal bone, 83.
Chloroma of both temporal bones, 447.
Chronic suppurative otitis media, 193.
Chronic suppuration of the middle ear, 279.
Chronic suppuration of the middle ear, 263.
Chronic tympanic vertigo, 66.
Concretion in the ear in chronic middle ear suppuration, 436.
Contribution to surgery of the ear, 438.
Contribution to the otogenous cerebral abscess, 72.
Deaf-mutism, operation, adenoid vegetations, 197.
Deaf-mutism of probable syphilitic origin, 71.
Deafness following cicatrization of the tympanum, 271.
Dry heat in middle ear disease, otalgia, etc., 460.
Deafness, a new method of treating, 265.
Diphtheria, middle ear and sphenoid sinus in, 275.
EARACHE, 262.
Examination of the ear in children; diagnosis of deafness, 263.
FACIAL, nerve affected by ear disease, 280.
Facial paralysis of otitic origin, 445.
Foreign body in the auditory canal, 80.
Foreign body in the ear, 190.
Foreign body in ear, 76.
Fracture of the anterior-inferior wall of the external auditory canal, 182.
Fracture of the auditory meatus and the inferior maxilla, 276.
Furunculosis of external auditory meatus, 192.
GENERAL, pyemic infections following aural suppuration, 63.
Giddiness and staggering in ear disease, 262.
HEAD obstruction with reference to aural disease, 452.
Hematoma of external auditory canal, 61.
Hyperostosis of the external auditory meatus, 187.
Hysterical dysbasia with hysterical otalgia, 75.
Insanity complicated by hematoma aurium, 67.
Intra-cranial complications of suppurative diseases of the middle ear, 277.
KERATOSIS obturaus, 187.
LATERAL sinus thrombosis, 451.
Liquid vaseline injected into the tympanum, 85.
Lupus of the left auricle, 440.
MALIGNANT, pilocarpin in, 433.
Malignant tumor of the brain, 434.
Massage in the treatment of otitis media chronica, 459.
Mastoid fistula, trephining in, 65.
Mastoid involvement complicating acute middle ear suppuration, 198.
Mastoid suppuration, 194.
Mastoiditis, a case of Bezold's, 192.
Mastoiditis, Bezold's, 77.
Mastoiditis with thrombosis of the lateral sinus, 439.
Means of recognizing minute perforations of the tympanic membrane, 284.
Meniere's disease, a typical case of, 68.
Middle ear; curette and ossicle forceps, 262.
Myositis of the sterno-cleido-mastoid muscle, 79.
NON-OPERATIVE treatment of chronic suppurative disease of the antrum and tympanum, 461.
New ear forceps, ear syringe tip, and obstructor and ear speculum, 179.
New method of dealing with the external meatus, 80.
Occlusion of the external auditory canal and its treatment, 281.
Operative cure of otitic lateral sinus phlebitis, 264.
Operative technique in otitis cerebral abscess, 267.
Otitic brain abscess in the occipital lobe, 453.
Otitic cerebral abscess in the occipital lobe, 82.
Otitic cerebral abscess, 276.
Otitic cerebellar abscess; death; autopsy, 193.

Otitic pyema, a case of, 266.
Otitis media purulenta, extension into skull and the back of neck, 199.
Otitis media purulenta on the left side, 190.
Otitis media serosa, 180.
Oto-massage, 78.
Oto-massage in suppuration of the ear, 81.

Peri-petrous suppuration, 67.
Perception of sound waves in fishes, 79.
Papilloma of the septum nasi, 280.
Perforations of the drum membrane, 69.
Primary epithelioma of the middle ear, 444.
Pyema after acute suppuration of the ear, 84.

RELATIONS of affections of the upper air passages to diseases of the ear, 192.
Report of clinical cases, 277.
Report of cases of complications of middle ear suppuration, 457.
Respiratory closure of the exposed lateral sinus and air embolism, 448.

SECONDARY cholesteatoma of the antrum and mastoid region, 195.
Stenosis of the external auditory meatus, 276.
Subjective sensations of sound, 76.
Subperiosteal squamo-mastoid abscess, 192.
Suppurative otitis media complicated, 282.
Surgical treatment of deafness, 68.
Syphilitic affections of the ear, 75.
Syphilis of the ear, 447.

THE ANATOMICAL topography of the ear, 84.

II.—NOSE AND NASO-PHARYNX.

ABSCCESS of the nasal septum with report of four cases, 213.
Adenoid vegetations, influence of on the growth and configuration of the upper maxilla and septum, 464.
Adenoid vegetations, influence of on the development and formation of the upper jaw and septum, 466.
Advantages in the treatment of atrophic rhinitis, 95.
Atrophic rhinitis, 463.

CASE OF congenital malformation of the nose, 296.
Cerebral abscess following suppuration of the frontal sinus, 98.
Chronic inflammation of frontal sinus, 87.
Chronic rhinitis and the erectile tissue of the nose, 212.
Clinical study of the adenoids; 618 cases, 285.
Congenital occlusion of the right naris posteriorly, 295.
Correction of external and internal deformities of the nose, 286.

DIRECT inspection and treatment of the pharyngeal tonsil and salpingopharyngeal fold, 267.
Diagnostic and therapeutic considerations of upper air tract, 295.
Diagnosis and treatment of affections of the frontal sinus, 467.

ELECTROLYSIS as a treatment for deviations, spurs and ridges of the nasal septum, 86.
Empyema of the antrum of Highmore, 291.

The chemical analysis of cerumen, 450.
The conducting portion of the labyrinth, 264.
The history and necropsy of a case of fibro-sarcoma of the naso-pharynx and middle cerebral fossa, 274.
The "mastoid" antrum a part of the middle ear, 66.

The modern pathology and treatment of acute otitis media, 82.
The rapid dilatation of strictures of the eustachian tube by electrolysis, 442.
The treatment of chronic suppuration of the ear, 437.

Temporo-sphenoidal abscess, 81.
Tests for hearing, 63.
Three fatal cases of otitic brain disease, 454.

Thrombosis of several sinuses of the brain and of the jugular vein, 273.
Thrombosis with pyema, 283.
Traumatic perforation of the membrana tympani, 278.

Treatment of adhesive middle ear processes with thyroidin, 180.
Treatment of otorrhea from the special point of eudocranial complications, 70.

Treatment of suppurative and non-suppurative middle ear inflammations, 442.
Trephining petrous bone for revolver bullet, 85.
Tubercular caries of the middle ear, 271.
Tuning forks, 185.

UNINTENTIONAL removal of a polypus of the membrana tympani, 439.

WHY IS suppurative otitis so frequent and mastoiditis so rare, 444.

Etiology of inflammation of the accessory sinuses of the nose, 469.
Eucain hydrochlorate as a local anesthetic in hypertrophic rhinitis, 296.
Excision of the tonsil by means of the galvano-cautery snare, 466.
Fibro-chondromata of bronchial origin, 214.

HEADACHES from nasal causes, 475.
Hemorrhage following removal of a superior turbinated body, 93.

IMPROVED method of cocain anesthesia, 294.
Infantile atresia of the nasal fossa, 297.
Inhalation of formalin for catarrh and other diseases of the respiratory tract, 288.
Interesting nose and throat cases, 213.

MALFORMATION of the nose, a case of curious, 215.
Modification of Bosworth's nasal and aural snare, 201.
Myxofibroma, a case of, 294.

NASAL fractures and deformities, a new splint for, 289.
Nasal obstruction and the symptoms of cardiac disease, 208.
Nasal obstruction in the newborn, a case of, 295.
Naso-pharyngeal adenoids, 461.
New operation for the correction of deflections of the nasal septum, 92.
Non-fetid oxena and chronic aural catarrh, 90.
Nose, a case of sarcoma and carcinoma of, 206.

OCCLUSION of the nose from tertiary syphilis, 291.
 On the operation of post-nasal adenoid growths, 471.
 On the nasal origin of melæna neonatorum, 289.
 Ophthalmoscopic diagnosis of cerebral complications of sinusitis, 475.
 Ozena, a new treatment of, 288.
 Ozena cured with injections of Roux's serum, 294.
 PATHOLOGY and treatment of ozena, 91.
 Pathological anatomy of ethmoid disease, 209.
 Perichondritis of the nose, 206.
 Photography of the nasal cavities and larynx by means of Roentgen rays, 215.
 Primary cancer of the naso-pharynx cured by injections of alcohol, 290.
 Primary syphilitic lesion in the nasal mucous membrane, 470.
 REMOVAL of the anterior extremity of the inferior turbinate as an alternative of tubinectomy, 207.
 Results of a bacteriological investigation of the nasal mucus, 216.
 Rhinoliths due to cherry stones, 465.
 SCARLET fever, the nose and throat in, 287.
 Some remarks on adenoids with cases, 290.
 Splint for nasal fractures and deformities, 474.
 Statistics of operations on the nose and larynx in the hospital at Lariboisière, 466.
 Subacute inflammation of the frontal sinus, 463.
 Supplementary course of treatment re-

quired for chronic nasal inflammation, 94.
 Suppurative inflammation of the frontal sinus, 296.
 Surgical therapeutics in rhinology, 203.
 THE DIATHETIC origin of tissue overgrowths in the pharynx of the child, 210.
 The frontal sinuses of 120 skulls from a surgical aspect, 96.
 The pathology, diagnosis and treatment of atrophic catarrh, 212.
 The purulent catarrh of adolescents, 211.
 The relation of certain nasal conditions to the pain during menstruation and parturition, 204.
 The removal of large neoplasms of the naso-pharynx and antrum maxillare, 297.
 The sequelæ of grippe, involving the accessory cavities of the nose, 463.
 The sub-mucous linear chemical cauterization for hypertrophies of the turbinates, 94.
 The symptoms and treatment of chronic supuration of the maxillary antrum, 462.
 To what extent does the hypertrophied pharyngeal tonsil atrophy, 210.
 Treatment of chronic sinusitis frontalis, 202.
 Treatment of suppurative diseases of the accessory sinuses and ear by ozone gas, 474.
 Turbinotomy and the spokeshave, 204.
 ULCERATION of the nasal septum, 202.
 WHY ARE operations upon the turbinated bodies becoming less frequent, 214.
 Worms in the nostrils, 471.

III.—MOUTH AND PHARYNX.

A SIMPLE means of throat examination, 303.
 Accessory goitre at the base of the tongue, 304.
 Adeno-carcinoma of the soft palate with a pedicle, 217.
 Articular rheumatism following tonsillitis, 299.
 BACTERIOLOGICAL examinations of 201 cases of tonsils of Meyer (adenoids), 299.
 Bacteriological finding in angina lacunar, 302.
 Black tongue, a case of, 221.
 CASE OF follicular tonsillitis due to milk infection, 298.
 Cleft palate, a case of inherited, 102.
 Crossed hemiplegia and paralysis of the pharynx, 306.
 EXTIRPATION of the tongue for epithelioma by Kocher's method, 219.
 FIBRO-MYXOMA of the upper surface of the palate, 298.
 INSTRUMENTS used in tonsillotomy by electro-cautery dissection, 220.

LACHRYMAL and of the salivary glands of the mouth, 221.
 Nervous deafness in diphtheria, 306.
 PEMPHIGUS chronicus vulgaris of the mouth and epiglottis, 475.
 Plastic operation for restoring the lower lip, 218.
 Prolonged diphtheria, 300.
 RELAPSING sore tongue, 300.
 Removal of the tonsils, floor of the mouth, and half of the tongue, 303.
 SECONDARY hemorrhage subsequent to tonsillotomy, 301.
 Streptococci sore throat in children, 306.
 Study of rheumatic angina, 301.
 THE BACILLUS of Friedlaender in pharyngitis and tonsillitis, 304.
 The nature and treatment of quinsy, 298.
 The treatment of hypertrophied tonsils, 306.
 Tongue, foreign body in, 101.
 Tonsils, tuberculosis of, 103.
 Tonsils, malignant tumor of, 103.
 Tuberculosis of the tonsils, pharynx and larynx, 305.

IV.—LARYNX.

AN ARTIFICIAL larynx, 311.
 Acute infectious phlegmon of the larynx, 110.
 Advantages of intubation over tracheotomy, 108.

Anatomical examination of the stenosed larynx, 104.
 Angina epiglottidea anterior, 481.
 Angina epiglottidea anterior, 482.
 Aphonia, three cases of functional, 311.

CANCER of the larynx, 310.

DIPHTHERIA antitoxin, 483.

EARLY hereditary syphilis of the larynx in children, 477.

Effect of cigarette smoking on the respiratory mucous membrane, 232.

Examination of larynx and trachea without mirror, 109.

Extirpation of the larynx for squamous-celled epithelioma, 228.

HEMORRHAGE from the larynx in a patient with alcoholic cirrhosis, 482.

Hypertrophy of the lingual tonsil removal by tonsillotomy, 485.

Hysterical aphonia, 478.

IMPORTANCE of urinalysis to the laryngologist, 231.

Intra-laryngeal mycosis, 484.

Intubation as an aid to tracheotomy, 478.

Intubation in adults, 483.

LARYNX, cancer of, 311.

Larynx in infants, a method of examining, 229.

Laryngeal and post-nasal photography with the aid of the arc light, 226.

Laryngeal disease, three cases of obscure, 308.

Laryngeal neoplasms, 230.

Laryngeal perichondritis complicating typhoid fever, 307.

Lead palsy of the laryngeal muscles, 225.

Lingualphite in the treatment of laryngeal tuberculosis, 223.

MIRRORS, a simple method for preventing the dimming of, 232.

Multiple papilloma of the larynx in

children, 478.

ON ONODI'S phonatory center, 227.

On tracheal tugging, 313.

PAPILLOMATA of the larynx, 309.

Paralysis of the recurrent laryngeal nerve, 313.

Post-mortem appearance of a laryngeal stenosis, 226.

Primary tuberculosis of the larynx, 221.

REMOVAL of a bead from a child's air passage, 231.

SALIVARY calculus in an abscess-sac in front of larynx, 111.

Simple and practical method to keep laryngeal mirrors from getting moist, 486.

Stenosis of the larynx and trachea, 109.

Surgical treatment of lupus of the larynx, 480.

Surgical treatment of tuberculosis of the larynx, 309.

THE EPIGLOTTIS as a pincushion, 308.

Tabes dorsalis with laryngeal crises and laryngeal vertigo, 481.

Toxic paresis of the laryngeal muscles, 106.

Tracheal injections in the treatment of laryngeal and pulmonary inflammations, 480.

Tracheal injections of creosote in laryngo-pulmonary tuberculosis, 224.

Traumatic intra-thoracic rupture of the trachea, 309.

Treatment of deaf-mutism by operation on the so-called adenoid vegetations, 482.

Treatment of tuberculosis of the larynx, 307.

V.—MISCELLANEOUS; THYROID GLAND; ŒSOPHAGUS, ETC.

ACUTE osteomyelitis of the upper jaw, simulating empyema of antrum, 488.

Anti-diphtheritic serum, 235.

Antitoxic serum in diphtheria, tests of, 117.

Antitoxin treatment of diphtheria, 113.

BONE in œsophagus, 237.

Bronchial asthma only during menstrual period, 119.

CAUSE and prevention of diphtheria, 115.

Cultures for bacteriological examination taken from nasal chambers as well as from the throat, 233.

DIAGNOSIS and treatment of laryngeal diphtheria, 114.

Diphtheria and its organism, soil in relation, 117.

Disarticulation and incision of the lower jaw, 321.

ENTEROPTOSIS and exophthalmic goitre, 321.

Eucaïn, 119.

Exophthalmic goitre and other vasomotor ataxias, 318.

External œsophagotomy for a tooth-plate in the œsophagus, 235.

FOREIGN body in the œsophagus and its detection by x-rays, 314.

GASTROTOMY and retrograde dilatation for cicatricial stenosis of the œsophagus, 320.

Gavage in infants, 313.

Goitre exophthalmic, 123.

HERPES zoster as a premonitory symptom of Tuberculosis, 322.

Hydrochlorate of eucain in rhinology, otology and laryngology, 488.

Hydrastis canadensis in bronchial catarrh, 317.

INCOMPLETE fracture of the left cornu of the thyroid cartilage, 237.

Internal œsophagotomy, 319.

MALIGNANT lymphoma, 486.

NITRATE of silver applied with cocain, 492.

Notes on foreign bodies in various regions, 120.

ON THE pathology of the thymus gland, 235.

On the treatment of Graves' disease by means of the thymus gland, 236.

Osteo-sarcoma of both superior maxillæ, 318.

Oxygen gas a local therapeutic, 489.

POISONING by lactophenin, 492.

Practical radiography in œsophageal surgery, 317.

Proper treatment of cut-throat wounds, 316.

RUPTURE of healthy œsophagus from vomiting, 319.

SERUM therapy in tuberculosis, 319.
 Some investigations as to the virulence of diphtheria, 112.
 Speech defects, 118.
 Statistics on general anesthesia, 487.
 Syphilitic stricture of the upper end of the esophagus, 487.

THE FACULTY of speech, 315.
 The Klebs-Loeffler bacillus in throats and noses, 233.
 The micro-organisms of mumps, 315.
 The production of diphtheria toxin, 116.
 The surgery of the thyroid gland, 238.

The treatment of epithelioma of the face by applications, 314.
 The value of early intubation in pseudo-membranous croup, 234.
 Treatment of goitre by parenchymatous injections, 490.
 Treatment of venereal ulcers with iodo, 493.

VALUE of x-rays in medicine and surgery, 120.

X-RAYS in diagnosis, 119.

SOCIETY PROCEEDINGS, ETC., ETC.

PROCEEDINGS of the French otological society meeting, May, 3, 1897. Translated by H. A. Alderton; 509.
 Proceedings of the Austrian otological society meeting, January 26, 1897. Translated by H. A. Alderton; 494.
 Proceedings of the American laryngological association at Washington, May 4, 5, 6, 1897; 323.
 Proceedings of the French otological society, 1897. Translated by J. Holin-

ger; 376.
 Proceedings of the American laryngological, rhinological and otological society, Washington, D. C., May 1 and 2, 1897; 349.

NOTES AND ANNOUNCEMENTS, 124, 241, 380.

BOOK NOTICES, 247, 380, 517.

VOL. VI.

NOVEMBER, 1897.

No. 4.

ANNALS
OF
OTOLOGY, RHINOLOGY
AND
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Published Quarterly

By JONES H. PARKER.

108 North Fourth Street, - St. Louis, Mo.

SUBSCRIPTION PRICE, PER ANNUM, \$3.00. SINGLE COPIES, \$1.00.

Subscriptions in Great Britain. 14 shillings.

Entered at the Postoffice at St. Louis, Mo., as Second-class Mail Matter.

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1. When an article for publication under the head of "Original Communication," is accepted, it is understood, unless specially arranged, that it is to be contributed to the ANNALS exclusively, and that copies or abstracts of the same have not been made for and will not be published in any other journal.

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6. Words to be printed in *italics*, should be underscored once, in SMALL CAPITALS twice, in LARGE CAPITALS three times.

The ANNALS is published four times a year: On or about the last of February, May, August and November. Articles for succeeding issues should be in the hands of the editors sixty days before the date of publication.

All communications relating to editorial work should be directed to

DR. T. MELVILLE HARDIE,
34 Washington Street,
Chicago.

Subscriptions and advertising should be addressed to the publisher,

JONES H. PARKER,
108 N. Fourth St., St. Louis, Mo.

ADVERTISEMENTS.

| | |
|---|---------|
| LISTERINE—Lambert Pharmacal Co..... | ix |
| FOLDING CASES OF TRIAL LENSES—Geneva Optical Co..... | x |
| COMPRESSED TABLETS—John Wyeth & Bro..... | xi |
| MEDICAL AND SURGICAL REGISTER—Polk's..... | xii |
| SURGICAL TABLES—New Table Co..... | xii |
| DE ZENG'S REFRACTOMETER—Cataract Optical Co..... | xiii |
| ALLISON PHYSICIAN'S TABLE—W. D. Allison Co..... | xiv |
| ENGRAVING—Binner Engraving Co..... | xv |
| SURGICAL INSTRUMENTS AND EYE-GLASSES—A. S. Aloe Co..... | xvi |
| TALCUM POWDER—Julius Fehr, M. D..... | xvi |
| INSTRUMENT CASES—E. B. Meyrowitz..... | xvii |
| MULTI-NEBULAR VAPORIZER—Globe Manufacturing Co..... | xviii |
| ANTISEPTIC PREPARATIONS—Phenique Chemical Co..... | xix |
| ANTIKAMNIA—Antikamnia Chemical Co..... | xx |
| SOMATOSE—Schieffelin & Co..... | Cover 3 |
| HYDROZONE, GLYCOZONE—Charles Marchand..... | Cover 4 |



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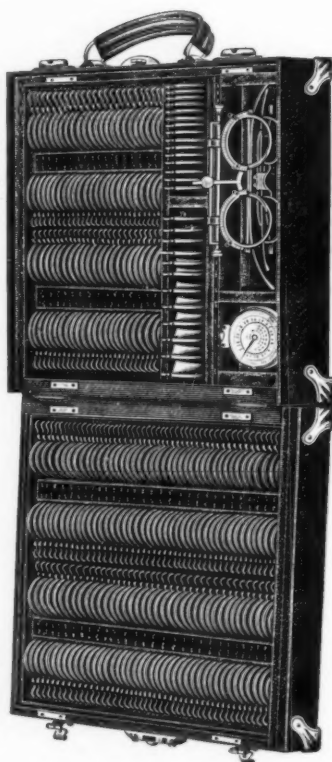
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| 4 Morphine Sulphate, 1-6 grain. | .70 | .30 | 60 Eserin Sulphate, 1-100 grain. | 1.50 | .70 |
| 5 Morphine Sulphate, $\frac{1}{2}$ grain. | .70 | .30 | 61 Physos. Salicylate, 1-40 grain. | 1.50 | .70 |
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| 9 Morphine Sulphate, 1-120 grain. | 1.00 | .45 | 65 Hyoscin Hydrob., 1-100 grain. | 1.20 | .55 |
| 10 Atropin Sulphate, 1-150 grain. | .90 | .40 | 66 Hyoscin Hydrob., 1-50 grain. | 2.30 | 1.05 |
| 11 Morphine Sulphate, 1-6 grain. | .70 | .30 | 67 Spartein Sulphate, 1-30 grain. | .70 | .30 |
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| 13 Morphine Sulphate, 1-100 grain. | .70 | .30 | 72 Nitroglycerine, 1-100 grain. | .70 | .30 |
| 14 Atropin Sulphate, 1-200 grain. | .70 | .30 | 73 Nitroglycerine, 1-150 grain. | .70 | .30 |
| 15 Morphine Sulphate, 1-12 grain. | .70 | .30 | 74 Nitroglycerine, 1-200 grain. | .70 | .30 |
| 16 Atropin Sulphate, 1-250 grain. | .70 | .30 | 75 Morph. Hydroch., 1-6 grain. | .80 | .35 |
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| 41 Digitalin, 1-100 grain. | .70 | .30 | 100 Quin. Chlorhydrosul., 2 grains. | 1.80 | .80 |
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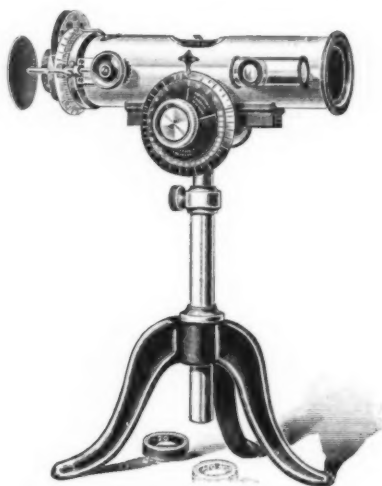
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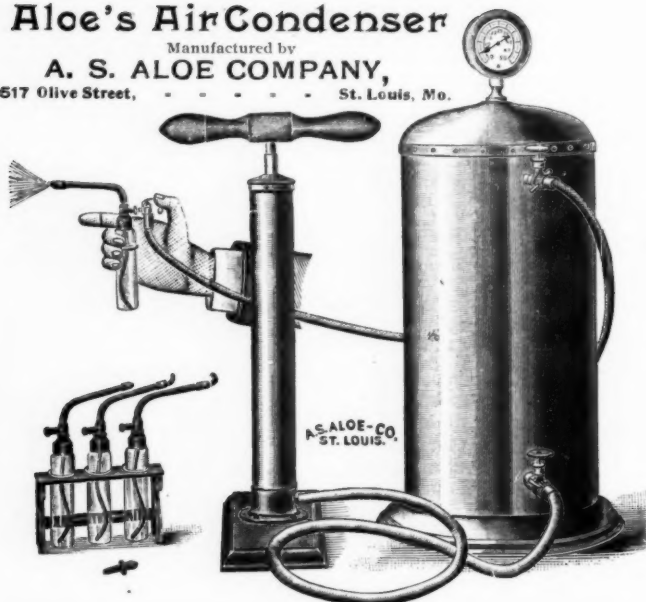
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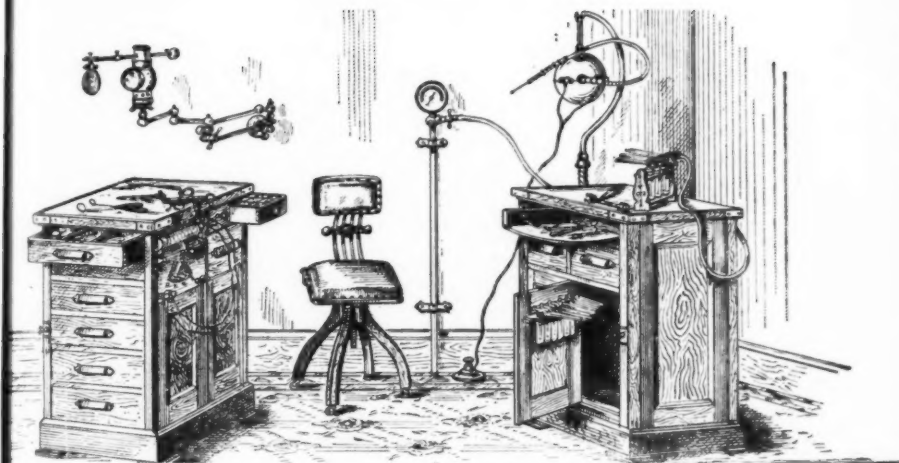
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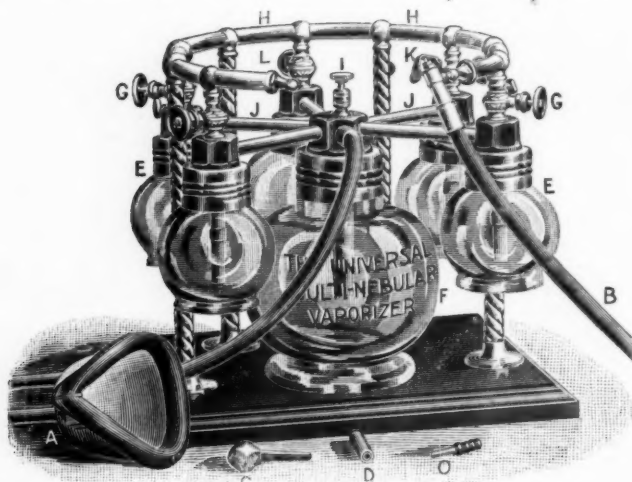
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